PURPOSE AND IDENTITY IN PROFESSIONAL AND STUDENT RADIOLOGY WRITING: A GENRE BASED APPROACH

by

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I declare that *Purpose and identity in professional and student radiology writing: a genre based approach* is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

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SUMMARY

This thesis examines the way in which purpose and identity are realised in the written case reports of radiography students in comparison with those of professional writers. Students entering a new discourse community have to take on a new social identity and this identity is expressed by means of familiarity with the appropriate discourse conventions, including genre as the most overt expression of rhetorical purpose. Also important are the pragmatic choices used by writers to guide readers' understanding of text and to construct interaction between them, i.e. metadiscourse, which here provides an additional and complementary way of viewing purpose and identity.

The study aims, at a more theoretical level, to make a contribution to writing research by integrating genre analysis and metadiscourse analysis within a single framework to provide new insight into the resources available to writers to construe identity in text. At a descriptive level, it provides analyses of a hitherto neglected genre of medical writing. Because the study compares the writing of novices and professionals, the description of this genre makes findings available for pedagogical application.

Radiographers and radiologists work as members of the same professional teams and both publish case reports, often in the same journals. Data for the study is provided by two corpora of reports, one produced by radiography students and the other published in national journals by professionals. The genre analysis establishes the move structure of the radiological case study for both corpora and a cross-corpus analysis of metadiscourse demonstrates how identity is realised in the text as the moves unfold. Both quantitative and qualitative approaches are adopted with regard to the data.

The student reports appear to be examples of a sub-genre of case reports with the move structure and metadiscoursal strategies differing in several significant ways, reflecting the different purposes and identities of the writers. Student writers are found not to be concerned with the more persuasive rhetorical functions of the genre and tend to align themselves with the viewpoint of the patient rather than the medical profession, drawing on school essay discourse and making use of metadiscoursal strategies associated with textbooks.

Key words:
Identity, case report, genre, metadiscourse, radiography, radiology, student writing, professional writing

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CHAPTER 1

INTRODUCTION

1.0 EXPLORING PURPOSE AND IDENTITY IN WRITING

For students being inducted into a new field of knowledge and practice, writing is not just a means of being assessed in terms of content knowledge but also a means of entering a new disciplinary community. This entails a number of challenges since any context will require particular literacy practices if a writer is to be considered an insider (Gee 1990). In other words, expertise is signalled by familiarity with the genres and expectations of a target community. Thus, it is in writing that novice writers take on and reflect a new identity.

Identity, then, can be seen as socially defined. It is realised and demonstrated by means of discourse choices that are constrained by membership of rhetorically constituted discourse communities with their particular purposes achieved through the use of particular genres and, at the same time, also open to the interpretations individual writers bring to these constraints (Hyland 2002f). Demonstrating a new identity may be less than easy for writers in a new field because they bring to it multiple identities and, in their writing, draw on the various, sometimes competing, discourses available to them (Ivanič 1998).

The discourse community is by definition linked with the notion of genre, which is "a recognizable communicative event characterized by a set of communicative purpose(s) identified and mutually understood by the members of the professional or academic community in which it regularly occurs" (Bhatia 1993: 13). It is primarily the link between genre and the discourse community which explains the relationship between the text and the writer and how the writer achieves particular rhetorical purposes and takes on and expresses social identities. In this study, then, purpose and identity are seen as reflected in the particular choices made by the writer within the context of the discourse community. These choices may not only reflect the overt purpose of the writer in terms of genre, where the purpose "influences the text structure itself", but various other functional purposes in addition (Grabe and Kaplan 1996: 210). Because purpose is seen in terms of rhetorical aims within a discourse community, it follows that choices of language patterns within that community relate to the social identity of the writer as a member. It is this view of identity that is the basis for this study, which examines the ways in which a group of undergraduate health

science students engage with the need to demonstrate a new disciplinary identity. This exploration of the rhetorical purpose and identity taken on by student writers in the community is carried out by means of an analysis of their discourse choices at more than one level in a written assignment in which they target a genre new to them but central to the field of medicine. These texts are compared with reports published by professionals in the field so that any differences can be used to inform an understanding of differing identities.

This chapter provides a context for the study by providing, firstly, an overview of the background (1.1) and then defining the research problem, which is formulated as a set of general and specific research questions (1.2). Answering these research questions is one of the research aims, which are further discussed (1.3) before the scope of the theoretical basis adopted in the study is explained (1.4). A brief account of the methodology involved in achieving the goals of the research is subsequently given (1.5) and finally, an outline of the thesis provided (1.6).

1.1 BACKGROUND TO THE STUDY

The aim of this thesis is to explore writer purpose and identity in the writing of health science students and professionals as realised in their written case reports. The study is situated in the context of undergraduate academic literacy, which, representing, as it does, a period of shift from school literacy practices to those of the expert professional, presents a transitional stage of particular interest (Hood 2004). The study grew out of my involvement in teaching and researching academic literacy in English in the Faculty of Applied Science at the Port Elizabeth Technikon (now part of the Nelson Mandela Metropolitan University), particularly with regard to preparing students to enter diploma courses. My work there focused on the difficulties students faced in writing at a tertiary level and the current study is the result of an attempt to understand better what the academic literacy demands of the various diploma courses, including those offered in the health sciences, might be.

The students whose writing is investigated in the current study were in their second year of the Diploma in Radiography (Diagnostic) at the Technikon. Radiography may be defined as the practice of using radiodiagnostic techniques to examine the body and radiographers work as members of professional teams in the field of radiology, which *Stedman's Medical Dictionary* (2000) defines as "the scientific discipline of medical imaging". While the radiographer is responsible for producing the radiographs which the radiologist interprets, both, in the course of their professional work, are likely to read and sometimes to publish case reports, often in the same journals. Thus, as a means of encouraging their

development as radiographers, the diploma students mentioned above are expected by the Department of Radiography to write a pathology case report as an assignment. In setting case reports for these undergraduate students, and for postgraduates as well, the department has two different aims. Firstly, and most importantly, it sees the writing of case reports as a useful means of inducting students into the medical field and of encouraging them to relate to real patients and the diagnosis of their diseases, rather then being concerned merely with radiographic procedures. Secondly, it aims to encourage the students to achieve professional status and to communicate with their peers by producing reports that are acceptable for publication in professional journals. It is more commonly postgraduate students who are encouraged to submit their case reports for publication but there have been instances of undergraduate students having papers accepted by a specialist journal. The lecturers who design the curriculum believe that the case report is a straightforward genre which requires less writing ability and less insight than a research article. Very few of the undergraduate students, nevertheless, meet the requirements of professional journals for publication. When they do, this seems to be most importantly a function of their ability both to choose an appropriate case in terms of rarity and professional interest and also to present it in a professionally acceptable way. This suggests that success in writing case reports, as measured by the fact of publication in a professional journal, may be seen as a function of the acquisition of a professional identity.

The focus of the study, then, is on writer purpose and identity in the writing of radiology case reports. The notion of identity as used in this study is understood in terms of a social view of language and not as the manifestation of an individualistic self rooted in private experience. Identity in this paradigm is viewed as being located within the discourse community. In this context writers can be understood as having constraints operating on them and choices available to them and these purposes, relationships and functions are represented in the linguistic forms of texts (Hyland 2002f). Identity in this study is therefore viewed as being realised in the language patterns chosen by writers and it is analysed in terms of particular theoretical constructs, as described below. In order to establish the extent to which the students have positioned themselves as professionals and what this might imply, an initial description of professional case reports is undertaken before the student texts are analysed. The framework for the analysis of student and professional texts will be taken up in greater detail in Chapters 2 and 3 in order to explain and justify the function and use of the various elements it comprises.

1.2 RESEARCH QUESTIONS

The research problem addressed in the study is the description of the identity of novice writers within the field of the health sciences as expressed by different levels of purpose in their written texts. This problem can be interpreted in terms of the following research questions, broken down where necessary into sub-questions:

1. To what extent are students writing in the workplace and in the context of the field of radiology able to position themselves as professionals?
   - To what extent do the genre structures used in student case reports resemble those of experts in the field?
   - To what extent do the important text types used in the student case reports resemble those of the experts?
   - To what extent do the metadiscourse patterns used in the student case reports resemble those of the experts?
   - What are the reasons for the choices found in these various patterns in the student texts?
   - What influence do the context of situation and ideology have on the way in which the students are positioned through the use of this genre, lexicogrammatical and other patterns?
   - How do the students' understandings of their role as writers relate to the patterns evident in the texts they write?

In order to address this first question, it is necessary to describe the genre of the case report, which, as appears from an examination of the research literature, has never been analysed in this way before. This then gives rise to a second research question, which can be formulated as follows:

2. What writer identity is displayed in texts by professional writers in the context of the field of radiology?
   - What identity is indicated by means of the genre structure and associated lexicogrammatical patterns of the case report?
   - What identity is indicated by means of important text type structures in the case report?
   - What identity is indicated by means of patterns of metadiscourse use in the case report?

These questions provide a way into the analysis of the texts and suggest a structure for the study as a whole.

1.3 RESEARCH AIMS

The aim of the thesis is to explore writer purpose and identity in the writing of health science students and professionals by means of answering the research questions set out above and, at the same time, to make a contribution to the field of applied linguistics at a more theoretical and a descriptive level, while also having relevance at an applied level in terms of health science education, although this last is not a focus of the study.

The study seeks to explore the notion of identity as the discoursal self or persona realised in a single institutionalised genre by operationalising it in terms of two related but separable levels of purpose in text, namely genre at a macro-level and metadiscourse at a micro-level. The theoretical framework, represented visually as an integrated model in 3.1.5, therefore combines two different types of analysis, that of genre studies and that of metadiscourse, in a single study so as to explore complementary ways in which writers achieve their purposes and represent themselves in terms of identity. Genre is the most overt realisation of overall social purpose in text. Metadiscourse conveys attitude to subject matter and to the reader and allows the writer to influence how readers receive the text. Linking the analysis of metadiscourse and that of genre structure within a single framework will extend the range of insights into writer identity. These complementary approaches inform each other, thus providing a new level of insight into the way expert and novice writers construe identity dynamically in the unfolding text.

At a descriptive level also, this thesis attempts to break new ground. While the field of medicine has been the subject of a great deal of research in discourse analysis, most of this has been carried out within the critical paradigm. Viewing identity in terms of purpose constitutes a move away from the focus on hegemony which has tended to characterise studies on writer identity and the discourse of medicine, such as Fairclough (1992b). While the current study similarly links language, context and meaning, it approaches identity in terms of writer purpose, rather than critically. This may be seen as in line with the project espoused by Martin and Rose (2003), who call for the critical approach, centred on issues of hegemony, to be complemented by a research focus on community. This focus is one which attempts to understand how people are included in or excluded from discourse communities and in which redistribution of power does not necessarily imply domination and struggle.

In addition, while there is an extensive research literature concerned with the genre of the research article in a range of disciplines, including that of the medical research article (e.g. Nwogu 1990, 1997), this thesis, through the investigation of the case report as an instance of professional discourse in medicine by means of a genre analytic approach, provides an account of a medical genre that has not before been described in this way. The reason for the dominance of studies on the research article may be that it is the genre associated with the creation of knowledge in any particular disciplinary field. The current study may thus be seen as providing a focus rather on the clinical aspects of identity in health professionals as expressed in case reports.

Furthermore, the thesis applies a new analytical approach to the medical case report, that of metadiscourse, making comparisons, where relevant, with existing findings regarding research articles in a related field. Previous descriptions of interactions between writers and their texts, on the one hand, and their readers, on the other, have not been able to draw on a consistent analytical approach. The recent work of Hyland (2005), used in this study with modifications, has provided this theoretical underpinning together with an account of metadiscoursal use across a number of disciplines. The analysis undertaken here takes the application of Hyland's (2005) metadiscourse model further by using it firstly to analyse the characteristic metadiscourse resources of a new genre and, then, in addition, to examine how they function in the different sections and moves of this genre. In this way, the two analytical approaches of genre and metadiscourse are brought together and shown to provide complementary views at a macro and micro-level of the signalling of writer purpose and identity in the texts.

Finally, apart from the aims construed above in terms of theoretical and descriptive levels, the study aims also to make a contribution, although an indirect one, at the level of application. Because the study concerns the writing of novices in the general field of medicine, in comparison with that of professionals, the description of the case report genre not only allows the identification of expert practices in a new and insightful way but makes the findings available for application to the teaching of health science students in terms of the realisation of identity and the writing of case reports.

1.4 THEORETICAL BASIS FOR THE STUDY

This thesis is a heuristic study (Seliger and Shohamy 1989) that seeks to examine and account for the purposes and identity demonstrated in the writing of students in a new discourse community. This type of research generally implies the use of a largely qualitative

research design (Leedy and Ormrod 2005) but a complementary quantitative approach is also important in the current study, with language patterns being aggregated and quantified.

A coherent framework linking context and language is provided by systemic functional linguistics (SFL) which is briefly introduced below (1.4.1). Because identity is particularly linked with purpose, the specific language patterns which are examined in order to describe identity in the written texts are those that provide insight into purpose, namely genre (1.4.2) and metadiscourse (1.4.3).

1.4.1 Systemic functional linguistics

The theoretical model provided by SFL (particularly Eggins 2004; Halliday and Hasan 1989; Halliday and Matthiessen 2004; and Martin 1992) provides a framework for this study which allows for an analytic focus on social purpose linked with the context of culture by means of the construct of genre. SFL views language as a social semiotic, a meaning making resource (Halliday 1978), and theorises context as integral to the way texts are realised. Halliday (1989a) describes text as both an object in its own right and also an instance of social meaning in a particular environment. This environment (context of situation) affects the choices in meaning that are made in a continuous process of selection from the networks of possibility that constitute the linguistic system. The making of these choices occurs through a correlation between meaning (Halliday posits three metafunctions of ideational, interpersonal and textual meanings) and context (the three register variables are field, tenor and mode). Register is thus a way of looking at context from the perspective of language. Context can also be looked at from the perspective of culture, this level of context being realised as genre. Genre according to Martin (1992: 503) defines the goals of a text "in terms of systems of social processes".

The two levels of register and genre are envisaged as being related inter-stratally (Martin and Rose 2003: 254) so that "genre is a pattern of register patterns". In this way social and institutional purpose is accounted for in terms of patterns of genre structure, which in turn are realised by patterns at the level of register and the lexicogrammatical choices associated with the register variables, thus providing a powerful way of integrating important notions of meaning, context and purpose and analysing them in terms of language. A third stratum suggested in the SFL approach is that of ideology, which is an additional level of context and is expressed by means of genre and register patterns which encode beliefs and values, allowing particular discourse practices to claim power and authority (Hyland 2004a).

1.4.2 Genre

Of the levels of analysis referred to above, it is genre, relating discourse to its context and to communicative goals, which forms the central construct for this study. Particular genres can be associated with discourse communities, a concept discussed in 2.3.1, and therefore a genre-based approach provides a useful framework for this study, which locates the examination of identity in texts that are written within the particular discourse community of practitioners in a medical specialty, and for comparing the genre structure of texts by professional writers on the one hand and students on the other.

Three traditions of genre analysis are usually distinguished as, for example, by Hyon (1996). These are discussed in greater detail in Chapter 2 but will be mentioned here. The first tradition is known as New Rhetoric studies, where genres are conceptualised in terms of the rhetorical actions that recur in repeated situations rather than in linguistic terms, thus leading to a tendency to explore relations between texts and contexts by means of ethnographic rather than linguistic methods (Hyland 2002f). Another tradition is that of SFL, which provides a theoretical approach to genre within a framework for understanding the relationship of form and context. Martin (1992: 505), working in this tradition, defines genre as "a staged, goal-oriented social process". Thus a genre, such as a recount or a narrative, is described in terms of the stages in the text that writers conventionally use in particular situations to achieve their goals, and particular lexicogrammatical patterns are linked with these stages. The third tradition (e.g. Swales 1981, 1990) is concerned with teaching English for Specific Purposes (ESP) and involves analysis of institutionalised genres in the context of professional or disciplinary cultures. Genres in this approach are defined in terms of both form (i.e. move structure) and communicative purpose. It is the shared purposes of the discourse community which provide "the rationale of the genre, and help to shape the ways it is structured and the choices of content and style it makes available" (Hyland 2002f: 17).

While SFL provides the overall theoretical model to explain the links between text and context in the corpora examined in this study, it is the genre analytic approach taken by Swales and others in the field of ESP, with its body of research into related genres in a range of disciplines, that is most useful in investigating the sort of professional and academic genre examined here. The close relationship between Swales's work in genre and that of SFL theorists is pointed out in the next chapter (2.2.2.3). However, Swales links genre firmly with the discourse community in disciplinary contexts and this feature of his approach renders it a useful framework for a study of student medical case reports. In addition, it provides a

means of describing the typical rhetorical structures that realise communicative purpose and has been applied to a range of disciplines including the research article in medicine. What underpins the current study is the view that, because genre patterning is a way of achieving social purposes and is linked with the notion of the discourse community, it reflects the assumptions of the professional/academic group through socially recognisable discourse and is integral to the notion of cultural and community identity. As Grabe and Kaplan (1996: 138) state, genre is "the locus of local cultural assumptions, of language structure, of writer's purpose, of informational content, and of register contexts."

Swales (1990, 2004) and other ESP researchers have surveyed work on the rhetorical move structures of academic texts in a range of disciplines and it is clear that different disciplines make use of different move structures. The various moves of the genre provide a framework for analysing the meanings writers encode in text since each fulfils an aspect of the total purpose of the genre. These moves have been shown by ESP genre research, as discussed in 2.2.2.3, sometimes to have characteristic linguistic features. Therefore, in this thesis, aspects of the lexicogrammar, such as thematic analysis and transitivity, are used to support the genre analysis. Also linked with the level of genre is the analysis of text types, which frequently occur framed by a social genre. In the texts examined for this study it is the Problem-Solution pattern in particular which is notable, characterising as it does the case presentation section of the professional reports.

As explained above, these particular analytical approaches are employed within the model provided by SFL, which provides a framework for understanding the relationships between text and context and coherently bringing together various levels of analysis of text, linking genre with the context of culture and explaining the association between genre moves and characteristic lexicogrammatical choices within them. In addition, it includes the level of ideology as part of the framework, which allows for the findings of the other analyses to be integrated in terms of ideology.

1.4.3 Metadiscourse

Grabe and Kaplan (1996: 210) state that "the purpose for writing must be addressed on at least two levels." They suggest that, while genre represents the most overt level of purpose, aspects of metadiscourse are amongst a variety of "linguistic, psychological, and sociolinguistic principles" which both reader and writer draw on in understanding and interpreting purpose in writing. The term 'metadiscourse' refers to explicit discoursal choices

that writers use to guide their readers' understanding of the unfolding text and to construct interaction between them (Hyland 2005).

As stated above, genre realises purpose in texts at the most overt level and thus constitutes a central focus in the study, designed as it is to explore identity in medical case reports. In conjunction with an analysis of genre, metadiscourse analysis is used in the study to provide a means of exploring a different level of purpose, which is also relevant to whole texts but separable from genre and so an independent dimension. This analysis provides insight into another level of purpose, one which is concerned with the informational and persuasive goals of the writer and how the writer organises the discourse with the reader's needs in mind.

Metadiscourse is important in examining writer identity in these corpora so as to enable analysis of the ways in which the writers have articulated the interaction between themselves and the reader. Hyland (2005) has presented a robust definition of the concept, with suggestions for operationalising it, and I will draw on this work in the current study. He suggests that metadiscourse can indicate the ability of novice writers to "adopt an appropriate disciplinary persona by revealing a suitable relationship to their data, arguments and audience" (Hyland 2005: 55). An account of metadiscourse in a variety of disciplines, including that of biological sciences, is also provided in his work. He shows that various genres commonly make use of different metadiscoursal features in different ways which reflect their varying social purposes. Nevertheless, he does not go as far as to explore the variations associated with the different moves in the genre, as I do in the current study, where in relation to metadiscourse my analysis of the texts in the two corpora examined takes account of the rhetorical move structure of the texts and provides a fine-grained view of the way changing goals and purposes are reflected in metadiscoursal choices as the moves unfold.

1.5 ANALYSIS OF DATA

In order to address the research questions of the study, a corpus of student written discourse was analysed and compared with a corpus of professional writing within the genre of the medical case report. The data for the study were provided by 20 pathology reports produced by second-year students in the Department of Radiography at the former Port Elizabeth Technikon and 20 case reports selected from two journals available to the students in the Technikon library, namely *The South African Journal of Radiology* and *The South African*

Radiographer. Because I have taken publication in a professional journal to indicate membership of the disciplinary community, the patterns revealed and described in the corpus of professional case reports are used as a benchmark for examining the student assignments.

The two important aspects of the study, as mentioned above, are genre analysis and metadiscourse analysis, chosen because they reflect different ways of looking at purpose and identity in texts. As a first exploration, the genre structure of the radiological case study is established, based on the professional texts in the corpus and following the work of Swales (1990, 1998) and others, in which genre is treated as structured, staged, socially purposeful and reflective of disciplinary differences. The moves in terms of which the genre may be described are determined primarily by inference from the context but also, where relevant, in terms of patterns of lexicogrammatical features. A comparison is made between the two corpora to establish the extent to which the student texts make use of the accepted genre structure of the case report. The second means of exploring identity and purpose in the case reports is through an analysis of metadiscourse features across the corpora. The metadiscourse categorisation scheme suggested by Hyland (2005) provides a way of describing writer identity in relation to the reader. Both these analyses are conducted in relation to the moves making up the genre structure, with each move being understood to represent a variation in rhetorical purpose**.**

Both quantitative and qualitative approaches are adopted with regard to the data. Thus a general analysis of each corpus is accompanied by a detailed contextually-based discourse analysis of sample texts (a professional case report and a student report) and the patterns found in the two corpora are both described and quantified, each type of description usefully informing the other. While ideology is not a focus of the study, it is possible to use evidence from the various analyses undertaken of texts in order to reveal positions implicit in them, thus integrating these findings (Eggins 2004). An understanding of ideological positions in the field of medicine is assisted by the insight into the context of situation and of culture provided by the work of medical sociologists and by the analysis of interviews with the student writers.

1.6 OUTLINE OF THE THESIS

Various concepts and theories are brought together in this thesis in a unified framework for exploring purpose and identity in a genre within the medical field. This chapter has introduced the framework, which is provided mainly by SFL, together with the aim and scope

of the study, showing how an exploration of identity in the writing of radiography students will be achieved through an analysis of their case reports in terms of two levels of purpose and a comparison made with professional reports in the same field.

Chapter 2 consists of a review of the literature which explores the theoretical background in relation to the work of others in the field. The major focus is on SFL, which frames the model developed for this study. The notion of identity is explored and its link with purpose is shown. On the basis of this, two analytic tools that will account for purpose at different levels, namely genre analysis and metadiscourse analysis are discussed and an overview of previous studies making use of each is provided. Genre theory involves the idea of the discourse community and, since the study revolves around the writing of students who are novices in the discourse community, the notions of expert and novice writers are introduced. Because medicine as an institution has been the focus of a wide range of studies within and outside of the field of linguistics, this research literature is also reviewed. It suggests that an examination of the case report would provide a significant contribution in the field of medical discourse and also offers useful insights into the relevant context of culture.

Chapter 3 returns to the framework introduced in Chapter 1 and explains it in more detail, showing how it will be used to analyse the data provided by the two corpora. Various levels of context for a text are distinguished, all of which constrain the meaning that can be constructed by the writer and impact on writer identity as expressed in the text. While genre, the most overt means of expressing purpose in a text, is presented as the focus of macro-level analysis, the methodology of analysis at the level of register and the way the notion of ideology is used in the study is also described. Metadiscourse, which at a micro-level has an important role in expressing functional purpose, is established as a complementary analysis and discussed. An account of the collection of the data by means of these types of analysis is given. This methodologically oriented account of the theoretical framework forms the basis for the presentation of the findings in Chapter 4. These findings are comparative and provide for a detailed description of discourse practices in the radiology case report.

The final chapter comprises the conclusions, including pedagogical implications and applications of the study, together with its limitations and suggestions for further research.

CHAPTER 2

THE REPRESENTATION OF IDENTITY AND PURPOSE IN ACADEMIC AND MEDICAL WRITING

2.0 INTRODUCTION

This chapter outlines the literature that has been significant in my conceptualisation of the analyses reported on and discussed in Chapter 4. These analyses, as explained in the previous chapter, are part of the investigation in terms of genre structure and metadiscourse patterns of two corpora of texts, one of work published by professionals and the other produced by students, and are undertaken as a means of exploring the ways in which the students are able to take on a professional identity in their writing. Identity is viewed here as linked with purpose at two different levels within the text and, because this implies taking into account the reader and the discourse community, as explained below, the current study is located within a social view of writing.

Accordingly, having in this chapter first briefly explored the notions of identity and purpose in writing (2.1), I go on to outline various frameworks for analysis that link communicative purpose to language patterns (2.2). Moving from this more theoretical discussion, I then focus on writing in the disciplines (2.3). The description of academic writing that is undertaken in this study takes the form of an analysis of two corpora which exemplify professional and student writing in radiology, a specialty in the field of medicine. This field has been the focus of much scholarly attention from sociologists, educationalists and linguists and an overview of the research literature relating to discourse in medicine is presented (2.4).

2.1 IDENTITY AND PURPOSE IN WRITING

The notion of identity has become an important issue in writing research, particularly since a focus on discourse and semiotic systems for making meaning has led to a view of identity less as an individualistic notion rooted in private experience than as an understanding of a relationship with the social (Lemke 1992; Norton 1997). Thus, for Hyland (2002f: 66),

identity is located in "the public, institutionally defined roles people create in writing as community members". These identities are represented in texts in terms of discourses which make available to people both ways of understanding the world and ways of presenting themselves as members of the community (Hyland 2002b). Identity understood in this way is seen not as being reflected but rather as constructed in discourse (Benwell and Stokoe 2006).

Examining writer identity within an approach to text as discourse implies that the construct of identity encapsulates notions of purpose. According to Hyland's (2002f: 11) definition:

> Discourse refers to language as use, and to the purposes and functions linguistic forms serve in texts. Here the linguistic patterns of finished texts point to contexts beyond the page, implying a range of social constraints and choices which operate on writers in any context. The writer, then, has certain goals and intentions, certain relationships to his or her readers, and certain information to convey, and the forms of a text are resources used to accomplish these.

Lemke (1992: 86), in his critique of the tendency of systemic functional theory to confine the interpersonal to the interactional and to see communication in terms of exchanging messages, emphasises the importance of these goals and relationships as being social rather than individual. He suggests that we should move away from "centralising the speaking individual, of giving context of situation (communicative context) and the communicative function priority over context of culture (intertextual context) and the constitutive function". It is important then for an understanding of identity and purpose to link these concepts with the social aspects of language and not to view them as simply the expression of an individual's meanings.

The relationship between identity and purpose is realised in the way in which the writers of the corpus of medical case reports examined in this study identify themselves as professionals by using an appropriate genre to achieve the institutional purposes that will be accomplished by the reporting of a particular case.

The idea of the discourse community and the construct of genre are linked because the discoursal expectations associated with discourse communities "create the genres that articulate [their] operations" (Swales 1998: 212) and therefore by adopting appropriate genres writers identify themselves with a community. This means that they take on particular ways of representing the world and particular social purposes in their writing. The notion of genre, then, provides an important way of operationalising writer identity and

purpose and is a significant construct in this study. The extensive research literature on genre is surveyed in 2.2.2.

Another way of explaining how identity and purpose may be seen operating in texts through the assumptions about relationships between writer and reader that are implicit in purposeful discourse practices is in terms of metadiscourse. Hyland (2005: 14), referring to the explicit ways in which writers project themselves into texts in order to guide and relate to their readers, observes that writers of particular texts have to project a shared context for the reader:

> In pursuing their personal and professional goals, senders seek to embed their discourse in a particular social world which they reflect and conjure up through particular recognized and accepted discourses.

As noted below, metadiscourse can express identity in terms of persona (an identity associated with discourse community membership) and *ethos* (an identity related to credibility established within the discourse), allowing writers to align themselves with disciplinary values and culture (Hyland 1997, 2005). Metadiscourse is also clearly linked with purpose in texts. Grabe and Kaplan (1996) suggest that the parameter of purpose for writing addresses a range of functional issues in addition to genre and that these include purposes generally described in terms of metadiscourse. Because these types of purpose are less overt than and not necessarily implicated in genre, they can be accounted for as a different dimension of writing.

I will consider the research literature in the areas of genre and metadiscourse studies later in this chapter and in the remainder of this section I propose rather to discuss other work that addresses itself explicitly to aspects of the notion of identity in academic writing. Because the notion of writer identity has a complex history in rhetorical theory and literary criticism, Cherry's (1988) paper on self-representation in written discourse provides a useful analysis of two commonly used terms for the self as writer. According to Cherry, 'persona', a term deriving originally from literary tradition, refers to public and institutionally defined self-representation in writing. He distinguishes it from another term defined in Aristotelian discussions of rhetoric and still used in writing about academic discourse (e.g. Bizzell 1992), namely '*ethos'*. While making it clear that the terms interact in complex ways, Cherry (1988: 268-269) summarises the distinction between them as follows:

> With its roots in the rhetorical tradition, *ethos* refers to a set of characteristics that, if attributed to a writer on the basis of textual evidence, will enhance the writer's credibility. Persona, on the other hand, traces its roots through literature

> and literary criticism and provides a way of describing the roles authors create for themselves in written discourse given their representation of audience, subject matter, and other elements of context.

Persona, then, according to Cherry, refers to the social roles writers take on and, while this link is not specifically made by him, the notion of persona can be associated with their roles as discourse community members (Hyland 2002f; Ivanič 1998). By contrast, *ethos* is linked to their personal qualities. I will draw on both these concepts in the metadiscourse analyses which form part of Chapter 4, showing how both *ethos* and persona are established in interactions between writer and reader in the professional corpus of medical case reports.

The social view of identity as "rhetorical traces of membership" (Hyland 2002f: 66), which has been referred to above, has been extended to involve a more critical view of academic discourse communities, for example by Bizzell (1992), who notes that account must be taken of ideological constraints on the learning of new discourses. Ivanič (1998) also has made an extensive study of the way in which multiple identities impact on students learning to write in an academic context. Building to some extent on Cherry's approach to writer identity, she shows how particular writers may be positioned in conflicting ways by the various resources for identity available to them. These various resources arise because of multiple community memberships. Ivanič focuses on what she terms the discoursal self (the voice which the writer constructs in the act of writing relating to values, beliefs and power relations), suggesting that writers are positioned by their discourse choices and so take on a multiple identity. Her study of mature student writers shows that their texts reflect "particular disciplinary views of the world…particular ideologies of knowledge-making, and…particular views about their role in the institution" (Ivanič 1998: 45).

One way in which such views are captured in text is in the form of the genres of the institution and the discipline. Ivanič follows Fairclough in seeing texts as drawing on both genre and discourse conventions, with genre conventions related to social situation and purpose (e.g. the essay) and discourse conventions to the subject matter and ideology (e.g. philosophy or women's rights). In order to find linguistic evidence of the discoursal choices of her students, Ivanič draws on Halliday's model of the three language macrofunctions (ideational, interpersonal and textual) (Halliday 1989b). In this way she provides an interesting attempt to link the lexicogrammar of student texts to writer identity and associates this with genre theory. Ultimately, however, her frame of reference for identity in the academic community seems to be limited to that of fields of study in terms of register and different role relationships, or voices that appear in the text, defined by the social context. There is little attempt to provide a rigorous approach to genre as classes of purposeful,

structured events or to account in any detail for the role a specific genre may play in influencing the lexicogrammatical choices available to the writer. Nevertheless the contested nature of acquisition of a new genre by students is an insight that will be important in explaining features of the texts of the radiography students in this study.

2.2 FRAMEWORKS FOR ANALYSIS OF TEXT

The discussion of identity and purpose in written discourse in the previous section has already touched on important conceptual frameworks such as genre and metadiscourse. In this section I explore these constructs in greater detail, positioning them in a discussion of text as discourse (2.2.1), linked with communicative purpose in a social context. In particular, the theoretical understandings of Systemic Functional Linguistics (SFL) are outlined in order to establish a way of accounting for the functional relationship between text and context which is able to be linked with language patterns. There is a strong focus on the central concept of genre (2.2.2), with various genre theories being described in order to establish a rationale for choosing the approach that I use for analysis of the corpora. The relationship between move analysis and SFL that emerges from the research literature is also explained and the distinction made by various scholars between genre and text type elucidated, since both are important for the model of discourse developed in the study. Relevant to a comparison of the expert and novice corpora are notions such as intertextuality and ideology and work on these concepts is also therefore briefly reviewed.

Because genre is an overt way of describing purpose it is viewed in this study as a means of exploring identity in text. Another important way of gaining an insight into identity, as I also seek to demonstrate, is that provided by metadiscourse. Metadiscourse is defined and a new model for analysis (Hyland 2005) discussed (2.2.3).

2.2.1 Analysis of text as discourse

Research into the writing of text is an extremely broad field, drawing on a range of theoretical approaches and practices. The current study attempts to answer questions that focus on the developing identity of student writers and so I propose to restrict my review of the literature to work that is congruent with a social approach to writing. Kaplan and Grabe (2002: 194) explain:

> Discourse analysis sees texts as the negotiated communicative achievements of the participants (the writer and the reader). …[W]hen text is used in specific situational contexts, [the] writer's intentions and his/her relationship with/to [the] reader must be considered as features of meaning. Such a perspective obviously implicates the use of text genres and the development of specific discourse communities using text for specific purposes.

In other words, discourse analysis looks at textual linguistic patterns in relation to the relevant cultural and social contexts in which the texts exist (Paltridge 2006). Linguistic patterns and organisational structures within the text form resources for interpretation and "draw the analyst into a wider paradigm which locates texts in a world of communicative purposes and social action, identifying the ways that texts actually work as communication" (Hyland 2002f: 11).

Communicative purpose has been seen as reflected in language patterns in a variety of ways. One that is relevant in this study, because it has been taken up in the systemic functional model as a system for expressing textual meaning, is work on functional sentence perspective (Firbas 1986, 1992; Vande Kopple 1982, 1983). Functional sentence perspective approaches attempt to indicate how writers structure clauses in relation to what they assume is known to the reader. One of the basic concepts of the theory is 'communicative dynamism' (CD), "which refers to a quality displayed by the development of information toward a particular communicative goal" (Firbas 1986: 42). Context has a dominant role in the interplay between the factors that signal degrees of CD. Thus the analysis of sentences or clauses into *given* or *new*, *theme* or *rheme* and *topic* or *comment* is either dependent on the text as a whole or reflects insights that can be applied to connected texts.

This type of analysis has, as mentioned above, been integrated into the systemic functional framework and Halliday describes the theme as the point of departure for the writer or speaker and the rheme as a move away from this starting point (Halliday and Matthiessen 2004). The given-new message line presents the information from the point of view of the listener or reader as constructed by the speaker or writer. It is possible to link thematic content to the flow of information of paragraphs (Dubois 1987; Fries 1994; Martin 1992) and to genre differences (Eiler 1986; Francis 1989; Fries 1983; Gosden 1992; Martin 1989; Vande Kopple 1991). Analyses of specific genres in terms of patterns of given and new information have been carried out by Weissberg (1984) for experimental research reports and Nwogu (1995) for medical research papers, abstracts and science popularisations.

Another approach to discourse structure that looks beyond the text itself to account for communicative purpose is clause relational analysis, which suggests that readers understand clauses or sentences in a context in which they belong together by either sequencing or matching them and that writers organise their texts in order to facilitate this sort of processing (Crombie 1985; Hoey 1986, 1991, 1994, 2001; Hoey and Winter 1986; Jordan 1984; Winter 1979, 1994). As Hoey (1986: 190) indicates:

> The fundamental assumption underlying all clause-relational analysis is that the sentences of a discourse have together a meaning that is more than the product of the meanings of the individual sentences taken separately. The methods we use to identify relations, or the patterns they combine to create, all center on spelling out the meaning readers find as a result of the relative placement of the sentences.

One of the higher level discourse patterns that are made up by combinations of clause relations is the Problem-Solution pattern. Researchers have identified this pattern within a variety of genres (e.g. Crombie 1985; Flowerdew, L. 2000; Harris 1986; Hoey 1983, 1994, 2001; Paltridge 2001) and it also appears as the organising pattern in the case presentation section of the case reports examined in this study.

The basic Problem-Solution pattern is illustrated by Hoey (2001: 123) with the following "vainglorious" text:

> 1. I was once a teacher of English Language. 2. One day some students came to me unable to write their names. 3. I taught them text analysis. 4. Now they all write novels.

In this basic text, sentence 1 is the Situation, sentence 2 the Problem (or Negative Evaluation of the Situation), sentence 3 the Response and sentence 4 the Evaluation (Positive Result). The Problem and Response stand in a Cause-Consequence relation to each other. Since sentence 2 is independently established as a Problem (by means of the lexical signal *unable*, which is a negative evaluation of a Situation, thus identifying a Problem and setting up the possibility of a Response) and sentence 3 contains the role of agent, then according to the mapping condition formulated by Hoey (1983), sentence 3 is a Response. A study by Flowerdew (2003) of engineering texts also shows how lexical items (e.g. *noise* and *recommended*), are used to signal Problems and Solutions respectively. The role of this sort of pattern in relation to genre analysis is discussed in 2.2.2.4.

An influential framework for discourse analysis, and one that underpins the model I develop in this study because it provides a framework for showing how language and function are linked with context playing a vital role (Halliday 1978, 1989b), has been provided by SFL. Halliday (1989c: 36) explains:

> The participants in a culture make use of [the] close relationship between the text and the [context of] situation as a basis of their own interaction…. What I am saying is that we can and do (and must) make inferences from the text to the situation about the kinds of meanings that are likely to be exchanged; and also inferences from the text to the situation.

Language, then, is not able to be separated from context or from content but is the medium through which meaning is realised, reflecting at the same time both context and content (Grabe and Kaplan 1996).

Developing ideas of Firth (1950) and Hymes (1967) in addition to those of Malinowski (see Hasan 1985b), Halliday (1989a) accounts for the relationship between the social environment and the functional organisation of language in terms of the notion of context of situation by positing three social contextual variables within which text occurs, namely, field, tenor and mode. Field of discourse refers to the social activity taking place and includes the institutional setting and the disciplinary field. The tenor of discourse refers to the participants (including their roles and status in the social and linguistic context) and the nature of the relationship between them. The mode of discourse refers to the part language plays in the situation and includes the channel selected (spoken or written) and the rhetorical mode, for example, the purpose of the text as persuasion or argument. Thus a very brief situational description of a typical radiology case report might be expressed as follows:

Field:	radiology, a specialty of medicine; recounting of a specific and unusual case in relation to available research evidence
Tenor:	practitioner to practitioner; audience unseen and unknown; writer providing account of a clinical experience likely to be unknown by audience
Mode:	written to be read; formal; primarily expository but also persuasive.

These aspects of the context of situation are represented as different semiotic systems, namely “arbitrary social conventions by which it is conventionally agreed that a particular

meaning will be realized by a particular representation" (Eggins 2004: 14). Texts that share a context of situation, and thus have meanings in common, constitute a register, for example, technical instructions or legal documents (Halliday 1989c). Thus, medical research articles share a register with the case reports.

Each type of contextual feature in Halliday's register theory is realised by a separate functional component of the semantic system, namely the experiential/ideational, the interpersonal and the textual, as indicated in the diagram below:

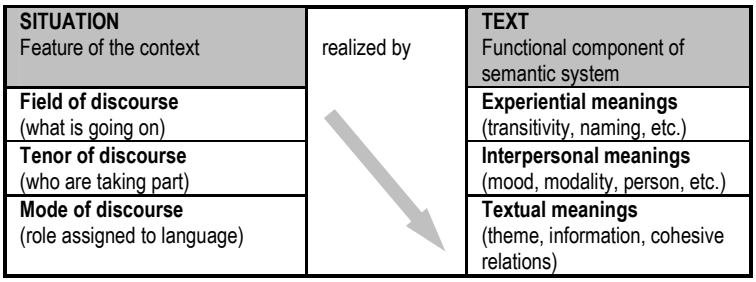


Figure 2.1 Relation of the text to the context of situation (Halliday 1989b: 26)

According to "the context metafunction hook-up hypothesis" (Hasan 1995), field, tenor and mode each determine and are constructed by experiential, interpersonal and textual meanings respectively. This means that particular social configurations of the three variables, field, mode and tenor ("variety of situation"), tend to correspond with particular groupings of linguistic features ("variety of language"), although it should be noted that Halliday (1989b) sees this relationship as probabilistic and some scholars have emphasised the permeability of the contextual parameters (Hasan 1995, Thompson 1999). In this way, the context in which the text unfolds tends to be encapsulated in the text. Thus, for example, tenor may influence interpersonal choices such as mood but at the same time the mood choices made by writers or speakers will indicate the tenor. In an example from a doctor-patient dialogue, Thompson (1999) shows how the doctor uses commands much more than the patient; moreover, the doctor's commands predominantly take the form of imperatives while the patient's commands are metaphorically (Halliday 1994) realised as declarative statements. The sort of linguistic choices made by the interactants in the consultations thus realises the difference in status between them within the context of situation. Making use of the sort of model of language offered by SFL provides important analytical tools for comparing the two corpora of texts that are the focus of the current study

because register theory is linked to a methodology for analysis of language patterns (Eggins 2004).

The notion of context of situation described above derives from the work of Malinowski (1923). Although Halliday (1989a) mentions that Malinowski also argued for the importance of context of culture in understanding texts, the former does not explicitly include this concept within his earlier theoretical framework. Hasan (1998, 2004) and Halliday (1999) later describe the context of situation as being an instantiation of the context of culture and link this with the concept of genre. This is a central construct in the study and is the subject of discussion below.

2.2.2 Genre analysis

The quotation from Kaplan and Grabe (2002) at the start of the previous subsection (2.2.1) makes the point that a consideration of genres and of the discourse communities using those genres for particular purposes is integral to a social perspective on text. Genre is a key notion in writing development and in learning through writing, because as students learn to take control of genre they also learn to manage language, goals, content and context (Grabe and Kaplan 1996). Thus the notion of genre links to various levels of writing development and instruction and provides a useful theoretical means of exploring the way in which the students who wrote the case reports analysed in this study learned to varying extents to adopt the appropriate discourse of the professional and academic community. Swales (1986: 14) considers genres to be "the most stable and the most solid of communicative events". The particular insight offered by a consideration of genre into writer identity makes it central to this study. This is because, as will be described below, genre is an overt expression of a set of communicative purposes recognised by experts within the relevant discourse community and because writers using that genre align themselves with those purposes. One of the ways in which writer identity is explored in this study is through a comparison of the disciplinary writing of novice and expert writers. In order then to provide a basis for this analysis, various approaches to the concept of genre are surveyed below.

Three very distinct models of genre are differentiated in the research literature, for example by Hyon (1996), and, although in this section I similarly describe the characteristics of each in turn, I also indicate how these approaches may be seen as related and how features of more than one will be drawn on in the analyses. The first approach described is that of a

school of genre known as the New Rhetoric, which puts little focus on discourse form and follows Miller (1984) in advocating a view of genre as primarily rhetorical action (2.2.2.1). The other two theories, by contrast, conceptualise genre in terms of both formal structures and communicative purpose. These are the systemic functional approach (2.2.2.2) and that of the ESP movement (2.2.2.3). Finally, in this overview of genre, some important associated concepts, on which I will draw in setting up the framework for the analysis of texts in Chapter 4, are described. These are text type (2.2.2.4), variation and continuity (2.2.2.5) and ideology (2.2.2.6).

2.2.2.1 Genre as rhetoric

Miller, in her seminal paper, argues that a definition of genre "must be centered not on the substance or the form of discourse but on the action it is used to accomplish" (Miller 1984: 151). She does not entirely discount the importance of form in genre since she claims that "a genre becomes a complex of formal and substantive features that create a particular effect in a given situation" (Miller 1984: 153). However, her emphasis is certainly on the classification of genres in pragmatic rather than formal terms. Developing earlier work on situational theory and on typification as an account of interpretation of the environment, she defines genre as "a conventional category of discourse based in large-scale typification of rhetorical action" (Miller 1984: 163). A particular genre is evoked because a recurrent situation is recognised as socially meaningful. This situation is interpreted or defined as a particular situation type, giving rise to "a conventionalized social purpose, or exigence, within the recurrent situation" (Miller 1984: 162) and acted on rhetorically in a socially recognisable way by means of discourse of a particular type. Thus an infinite set of discourse possibilities are codified as a finite set of conventionalised genres (Kamberelis 1995) and genre allows individual goals to be expressed through social exigences. However, because a genre is a social action, it also has the potential to change in response to social changes. Thus, an important consequence of this view is that genre is seen as a dynamic category rather than as a closed typology.

One of the theoretical approaches which sees itself drawing on Miller's understanding of genre as typified social action is known as the New Rhetoric (Coe 1994). Scholars working within this approach make use of the concept of genre to explore the academic literacy of students and professionals. Bazerman (1998), for example, has described the discourse of the physics experimental report. He emphasises the social purposes that genre fulfils in

situational contexts and also the way genre constrains and constructs future responses to similar situations. His focus is on "the entire set of relations and transactions in which [textual] appearances are embedded" (Bazerman 1998: 24), arguing that the features and interpretation of genres vary according to situation and location and also through time. This view of genre privileges rhetorical activity over text and tends to use ethnographic research as a means to examine the relationship between text and context rather than linguistic analysis (Hyland 2002f).

Berkenkotter and Huckin (1993) synthesise this social and dynamic understanding of genre with a cognitive perspective. Thus, they theorise genre knowledge as "a form of situated cognition" (Berkenkotter and Huckin 1993: 487). This knowledge, according to Berkenkotter *et al* (1988, 1991), is acquired within the communicative activities of disciplinary and professional cultures and instantiates their values, norms and ideologies. It nevertheless allows for human agency because a participant in a disciplinary or professional culture, while aware of the patterns and norms of that culture, is at the same time capable of modifying them in any rhetorical situation (Berkenkotter and Huckin 1993; Devitt 1993).

When Freadman (1994) attempts to define genre, she explores the metaphor of the game, with rules for play that impact on both the tactics in a particular game and on the strategies that constitute the game as part of a ceremony. Genres can thus be described not as individual texts following a set of rules but rather as groups of texts situated within a ceremony or within related ceremonies. Freedman (1990) takes up Freadman's view of the importance of place and function rather than content in identifying particular genres when she suggests that the presentation of law students' essays under the letterhead of a law firm and addressed to clients would alter the social action performed by the texts. Comparing case studies written by finance students and documents produced by financial analysts in the workplace, Freedman *et al* (1994) found that, while they had textual features in common, the social roles of the participants and the shaping context or exigence for the genres differed. While the motivation of the analysts was the solving of financial problems, the students were seeking to demonstrate their knowledge for assessment by their professor. These differences affected the texts that were produced. Genre analysis may thus make visible the positioning of student writers in relation to other writers and other texts.

Like Freadman, as outlined above, Bazerman (1994a, 1994b, 2004) suggests that genres exist as systems of activity that appear in recognisable patterns of social action interrelated

with each other in specific settings. Russell (1997), drawing on Bazerman's notion of genre systems in combination with neo-Vygotskian cultural-historical activity theory (which links writing with networks of social interaction), describes genres as the typified use of mediating tools, of which texts are only one type, within a network of directed human interaction. Russell suggests that this view of genres explains why texts may be recognised as belonging to the same genre even though they may differ with regard to linguistic features and why texts that are similar in form may function as different genres. Thus, for example, students doing the "same" task may be participating in different activity systems and students are often participating in different activity systems from academics (Russell and Yañez 2003). These sorts of consideration are relevant in assessing to what extent the radiography students actually succeed in writing the same sort of texts as the professional writers.

It is apparent that the approaches to genre as rhetorical action outlined above constitute themselves to a great extent around critique of the notion of classes of text and thus deliberately dissociate themselves from more linguistic and analytic textual approaches as adopted in this study. Thus, for example, Miller (1984) sets up her discussion in terms of a contrast between genre theorists who base their analyses on theoretical premises and form and those who are more interested in social reality. Berkenkotter and Huckin (1993: 476) explicitly dissociate their work from "taxonomical scholarship and theory building…based largely on analyses of the features of written or oral texts".

Nevertheless, Berkenkotter *et al* (1988), while seeking to find evidence of the development of a student in a Rhetoric Ph.D. program as a member of the discourse community, do not confine themselves to ethnographic studies or even to impressionistic judgements of the student's texts but quantify the developmental changes reflected in the corpus in terms of linguistic features and patterns, even though they opt not to follow a cohesive theoretical system. Thus their approach is what Coe (1994) describes as "both archaeological and ecological", taking into account linguistic differences and at the same time rhetorical purposes. Berkenkotter and Huckin (1993) also include in their theoretical framework for understanding genre the principle that genre knowledge embraces form as well as content. It may be argued, then, that there is a need to take seriously how text represents and constitutes part of the social action. To use Freadman's terms, we cannot focus on the ceremony without taking seriously one of the constituting elements of the game, the text, and so in this study I propose to use an approach to genre which draws on linguistic tools in accounting for relationships between texts and their contexts. Two such approaches are

outlined in the following two sections, the first being a development of Halliday's systemic functional theory.

2.2.2.2 Systemic functional approaches to genre

A consideration of text is crucial in the various views of genre offered by systemic functional linguists, which, as Hyland (2002f: 16) comments, "all reflect Halliday's concern with relating form, function and context."

The relationship between register (described in 2.2.1) and genre is not clearly spelled out in earlier SFL (Leckie-Tarry 1993, 1995; Lewin *et al* 2001). Halliday (1978: 134) refers to genre structure, describing it as a "projection of higher-level semiotic structure" and suggesting that it "can be brought within the general framework of the concept of register" as an aspect of mode. However, he recognises that "a genre may have implications for other components of meaning: there are often associations between a particular genre and particular semantic features of an ideational or interpersonal kind" (Halliday 1978: 145). He thus associates genre with field and tenor as well. Halliday's discussion of register (Halliday 1978, 1989c) is generally applicable to the notion of genre which it subsumes. As Leckie-Tarry (1993) explains, this means that the concept of register continues in Halliday's thinking to represent the relationship between text and context and that genre is seen merely as the organising structure of a text rather than the realisation of social purpose.

Hasan (1977: 230) also considers register and genre as synonymous "for most material purposes". She associates any genre with, on the one hand, a configuration of elements of structure of a text (later termed the generic structure potential, or GSP) and, on the other, a "contextual configuration" (particular values of field, tenor and mode). A given GSP is the structural output of a context of situation, which is conceptualised as one of the networks which makes up the context of culture (Hasan 1995). Each structural element of the GSP is realised by patterns of language. While Hasan relates texts to social activity, this is accounted for in terms of a contextual configuration (CC), "a specific set of values that realises field, tenor, and mode" (Hasan 1989a: 55). She distinguishes between obligatory and optional elements of structure, with field appearing to be responsible for obligatory elements, while variations originate in tenor and mode (Martin 1992), and the order of elements being criterial for membership of a genre.

It is clear from the account above that register theory in SFL is characterised by an emphasis on context of situation and linguistic features of texts. It was in an attempt to emphasise the wider social context that theorists working in this framework began to stress the notion of context as culture (Kress and Threadgold 1988; Martin *et al* 1987) and genres as conventionalised forms of characteristic situations (Kress 1989). Couture (1985, 1986), for example, draws a distinction between the function of register and of genre in correlating text and situation. She follows Halliday in linking text with situation type and in showing the implications of register as a function of the variables of field, tenor and mode for writer and reader. However, she goes on to suggest that, while register can be expressed by any stretch of language, for a stretch of language to be recognised as a kind of text it must express a genre. Couture's model combines the meaning potentials defined by register and genre while making explicit the constraints imposed on texts by each:

> While registers impose explicitness constraints at the level of vocabulary and syntax, genres impose additional explicitness constraints at the discourse level. They define conventional patterns of linguistic structure for a complete discourse, and they are intertextual…. Unlike register, genre can only be realized in completed texts or texts that can be projected as complete, for a genre does more than specify kinds of codes extant in a group of related texts; it specifies conditions for beginning, continuing, and ending a text (Couture 1986: 82).

Examples of genres mentioned by Couture include research reports, explanatory essays, business reports and narratives, while examples of registers are the languages of scientific reporting and of newspaper reporting.

What is needed then is a theoretical model that distinguishes genre and register and this is suggested by Martin (1984, 1985, 1991b, 1992, 1999), who posits two different semiotic systems existing in addition to that of language and describes the relationships between them thus:

> register function[s] as the expression form of genre, at the same time as language functions as the expression form of register. Register can then itself be organised with respect to field, tenor and mode, reflecting metafunctional diversity in its expression form, leaving genre to concentrate on the integration of meanings engendered by field, tenor and mode as systemically related social processes (Martin 1992: 495).

Of importance here is that different genres are not seen as related to each other in terms of a single register variable, as in Hasan's approach, and so "texts can be classified in ways which cut across metafunctional components in language" (Martin 1992: 505). Ventola (1987) also follows this approach, taking both genre and register as systems which are realised through language. Seeing genre as an underlying semiotic accounts for the way in which a particular genre may occur within a range of situations (Martin 1986b). For example, a research article may be written in a range of disciplines and so show differences in field while sharing the same genre structure.

Martin relates his understanding of register and genre to Bakhtin's (1986) perspective on language variety and context, which not only recognises metafunctional diversity but also "compositional structure" or "speech genre". Thus while the context of situation is represented by register, genre is now linked with context of culture (Eggins and Martin 1997; Martin 1992), as illustrated below by Eggins (1994):

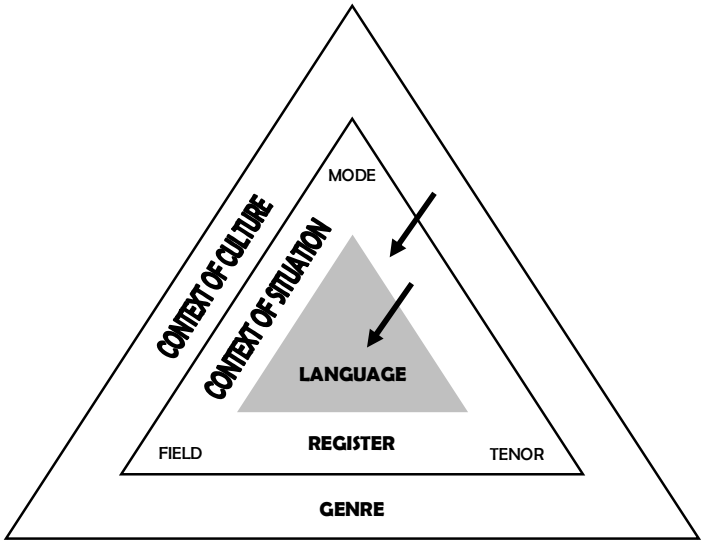


Figure 2.2 Genre and register in relation to language (Eggins 1994: 34)

Martin (1984: 25) defines genre as "a staged, goal oriented, purposeful activity in which speakers engage as members of our culture". In other words, social goals are achieved through genres; they are "how things get done, when language is used to accomplish them" (Martin 1985: 250). Genres are 'staged' in the sense that they are realised as 'schematic structures', or stages in a particular sequence that one moves through to realise a particular genre, that is a "beginning-middle-end structure". The example Martin offers of such a

structure is the Orientation-Complication-Evaluation-Resolution-Coda configuration that Labov and Waletsky (1967) have suggested for narrative. He goes on to explain that schematic structure "represents the positive contribution genre makes to text: a way of getting from A to B in the way a given culture accomplishes whatever the genre in question is functioning to do in that culture" (Martin 1985: 251).

The position taken by Martin is clarified by Lee (2002) in his discussion of the terms 'genre' and 'register'. Like Couture, he distinguishes these terms as indicating different points of view concerning the same text:

> *Register* is used when we view text *as language*: as the instantiation of a conventionalised, functional configuration of language tied to certain broad societal situations, i.e. variety according to use. Here the point of view is somewhat static and uncritical: different situations 'require' different configurations of language, each being 'appropriate' to its task, being maximally 'functionally adapted' to the immediate situational parameters of contextual use. *Genre* is used when we view the text *as a member of a category*: a culturally recognised artefact, a grouping of texts according to some conventionally recognised criteria, a grouping according to purposive goals, culturally defined. Here the point of view is more dynamic…: genres are categories established by consensus within a culture, and hence subject to change as generic conventions are contested/challenged and revised perceptibly or imperceptibly over time (Lee 2002: 259).

Examples given by Lee contrast the register of legal language with the genres that instantiate it, such as courtroom arguments, wills and affidavits, in which the focus is on membership of a category. Macken and Slade (1993) make the distinction between genre and the three elements of register in terms of the 'why' of a text in contrast to the 'what' (field), 'who' (tenor) and 'how' (mode).

Genre is seen by some proponents of SFL as determining the language that may be chosen in a text (e.g. Eggins 2004; Hasan 1989b). However, Paltridge (1993, 1997), investigating lexicogrammatical patterns in a particular academic genre, shows that the relationship between genre and language is difficult to predict and Eggins and Martin (1997) assert that the relationship between context and language is probabilistic rather than determined. Thus:

> an interactant setting out to achieve a particular cultural goal is most likely to initiate a text of a particular genre, and that text is most likely to unfold in a particular way – but the potential for alternatives is inherent in the dialogic relationship between language and context (Eggins and Martin 1997: 236).

This suggests that, while language patterns may be used, as in this study, to support a particular genre analysis and to help determine boundaries of structural elements, they are not necessarily the primary consideration in arriving at genre structure which is rather, as Paltridge (1994) suggests, established primarily in terms of content.

Martin, together with Rothery, (e.g. Martin 1986b, 1991a; Martin and Rothery 1986) has developed his theory of genre initially largely in the context of classroom writing. He thus seems generally to see genre in terms of text types important in school writing such as narrative, recount, procedure and description (e.g. Martin 1996, 2001). Longer texts (i.e. macro-genres) are seen structurally as developments or complexes of these elemental genres (Martin 1993a, 1994, 2002; Unsworth 2001). The texts examined in the current study are associated with a professional/academic setting and so are produced in a very different context from school texts. Assisting students and professionals in acquiring the sort of writing needed in a variety of settings is the motivation for another approach to genre developed in ESP. This forms the third perspective on genre and is discussed in the following section.

2.2.2.3 Genre analysis in English for Specific Purposes

Genre analysis in ESP is another approach that involves careful analysis of text. ESP is designed to meet the specific needs of the learner within particular fields or activities and is centred on analysis of the discourse appropriate to those activities (Strevens 1988). Much of the work on genre in this approach has used structural move analyses based on descriptions by Swales (1981, 1984, 1990) of research article introductions. Move analysis refers to the description of the organisation of text in terms of units which relate to both content and purpose. Such research has been criticised for a focus on "detailing the formal characteristics of genres while focusing less on the specialized functions of texts and their surrounding social contexts" (Hyon 1996). Nevertheless, the use of structural move analysis should not be taken to imply that social context is any less vital with regard to the definition of genre as understood by Swales and other scholars in this field. Bloor (1998) asserts that the distinctions between the genre approaches referred to by Hyon (1996) are relevant with

regard to classroom practice rather than at the level of theory, since Swales's work on genre applies the insights of other scholars in the Firthian linguistic tradition such as Halliday, Martin and Couture and shares with these approaches an emphasis on the relationship between text and social context. One example of this in practice is the study Swales conducted with Rogers (Rogers and Swales 1990) which examines the code of ethics of a large corporation in terms of the language choices in the text that are made in relation to social forces within the organisation.

Swales (1990) makes it clear that it is communicative purpose, something external to the text, that characterises a genre. He justifies this by an appeal to the need to account for the ability of a community to distinguish between parody and "the real thing" (Bex 1996; Swales 1990: 47). Swales's definition of genre encapsulates this emphasis:

> A genre comprises a class of communicative events, the members of which share some set of communicative purposes. These purposes are recognised by the expert members of the parent discourse community and thereby constitute the rationale for the genre. This rationale shapes the schematic structure of the discourse and influences and constrains choice of content and style (Swales 1990: 58).

Swales's most detailed exposition of genre theory emphasises common threads within the notions of genre as used in various fields. These commonalities include:

> a *distrust* of classification…a *recognition* that genres are situated within discourse communities…an *emphasis* on communicative purpose and social action…an *interest* in generic structure (and its rationale)…an *understanding* of the double generative capacity of genres – to establish theoretical goals and to further their accomplishment (Swales 1990: 44-45).

Noting the "accusations of formulaic parroting", Swales (1990: 16) suggests that one of the ways to avoid this is to stress the importance of understanding the rationale of a genre and the process aspect of instantiation. Threadgold (1989: 108-9) explains how the process of instantiation compares with genre as a product:

> As a model, [a text] functions like a static, finished product or a system according to which new texts can be constructed. Once the constructing begins it becomes again a dynamic process, a 'performance' which will inevitably change the model with which it begins.

Dudley-Evans (1994) also draws attention to the link his move analysis work has with social theories of scholars working in the areas of rhetoric and the sociology of science, claiming that this method of genre analysis allows a more rigorous investigation of disciplinary culture.

Far from seeking to limit discourse analysis to structural patterns, more recent work in genre theory has sought to produce "thicker" (Geertz 1973) descriptions of language use (Bhatia 2002). Bhatia (1994b, 2004) links professional competence with the notion of 'generic integrity', pointing out the important role played by both schematic text structures and socio-cognitive and cultural factors in achieving pragmatic success in professional and institutional discourse. This is because the regularly occurring patterns of a genre reflect the conventions of social knowledge that have been built up within a particular discourse community (Bhatia 1993). He also suggests that both form and cultural factors are necessary in identifying genres:

> Linguistic forms do carry specific generic values, but the only way one can assign the right generic value to any linguistic feature of the genre is by reference to text-external factors. Similarly, any conclusion arrived at purely on the basis of text–external facts needs to be confirmed by reference to text-internal factors (Bhatia 2004: 119).

In the same way, Flowerdew and Peacock (2001) indicate that the scope of genre analysis in EAP has taken on a broader focus to include the discourse community and the situation of its members.

One way in which this has been applied is by Candlin and Plum (1999), who identify two important aspects of text-external factors that make genres recognisable. One is the notion of institutional practice. Genres have "emblematic status as representatives of particular discourses and discourse worlds" and achieve "particular institutionalised purposes" (Candlin and Plum 1999: 204) as, for example, in the sort of medical discourse I explore in this study. Participant relationships as mediated within discourse are also relevant in establishing genre integrity. In fact, Candlin and Plum suggest that participant relationships are central to both institutional practices and to texts and can be a means of establishing the extent to which students have mastered the discourse of their community. Institutional practice and participant roles are both factors of importance in exploring to what extent the students who wrote the case studies analysed in this study have learned to participate in the

community's writing processes. Nevertheless, the textual practices exemplified in both the student corpus and the professional corpus will be central, as suggested by Prior (1998) and Casanave (2002). The latter explains how novice writers develop identities within the community through their texts:

> Over time writers in academic settings learn the social, political, and rhetorical games of how to orchestrate written texts so that realities and identities are constructed from the imperfections and complexities of school tasks, research activities, and conceptual explorations (Casanave 2002: 29).

In Figure 2.3 below, Bhatia (2002: 22) shows how language description can relate texts to context and suggests that a linguistic description at the level of genre will maintain "a balance between the study of linguistic form, on the one hand, and the study of context, in a broad sense of socio-cultural factors, to focus on why members of specific disciplinary cultures use the language the way they do and what makes this form possible".

Language Description
as
Text
What features of lexico-grammar are statistically and/or functionally distinctive?
Context: *narrowly configured in terms of textual links*

Genre
Why do we use the language the way we do and what makes this possible?
Context: *more specifically configured in terms of disciplinary cultures*

Social Practice
How do we relate language to social structures, social identities, and social practices?
Context: *broadly configured in terms of socio-cultural realities*

Figure 2.3 Aspects of language description (Bhatia 2002: 22)

Yunick (1997) emphasises the advantage of this sort of approach in synthesising move analysis and lexicogrammatical analysis, although he warns that it means that an appreciation of patterns common across genres may be obscured as a result. Bhatia (2008) suggests that the future of genre theory should involve a shift to critical genre analysis to explore the ways in which interdiscursivity allows for private intentions to be expressed by corporate genres. Each of the three types of description distinguished by Bhatia in Figure 2.3 is relevant to the analysis provided in the current study.

One way of synthesising a top-down and bottom-up approach has involved using specialist corpora and corpus linguistic approaches together with move structures (Bondi 2001; Henry and Roseberry 2001b; Kanoksilapatham 2005; Marco 2000; Thompson 2000; Upton 2002) and this particular approach is seen by Biber *et al* (2007) as an emerging subfield.

The various approaches discussed above tend to make use of move analysis as developed by Swales (1981, 1990). One aspect of Swalesian theory that has not received much attention is the role of schemata in relation to recognition and production of genres. Swales (1990: 83), drawing on the work of Carrell (1983, 1987), suggests that the two types of knowledge drawn on are content schemata, namely "background knowledge about the content area of a discourse", and formal schemata, namely "background knowledge of the rhetorical structures of different types of texts" (Carrell 1983: 81). According to Bruce (2008a), despite Swales's indication of the importance of formal schemata, the construct of the rhetorical move in the latter's work is actually seen only in terms of stages of content. The sort of abstract textual patterning referred to as formal schemata in Carrell's work includes "causation, problem/solution, and comparison structures" (Carrell 1984: 447). It is this sort of cognitive element in discourse that Bruce (2008a) argues needs to be accounted for. Thus:

> in failing to address the cognitive, rhetorical organizational dimension as an organizational influence in discourse, it appears that the ESP approach to genre, like the systemic functional approach, involves the attempt to match socially constructed patterns (used in the staging of content) with the linguistic systems of the language. Therefore, the ESP approach to genre is primarily a social genre construct although it acknowledges the existence of more general cognitive elements that are integral to the creation of discourse (Bruce 2008a: 32).

This distinction between social genre and cognitive elements in text will be taken up in the discussion of genre and text type in 2.2.2.4.

It is clear from the research literature reviewed above that the well developed ESP approach to genre is able to provide an appropriate means of description of, to use Bruce's (2008a) term, social genres within a general functional framework of text and context. Bloor (1998: 59) asserts that:

> much of what Swales has proposed concerning the importance of *genre* as a social construct that influences language form is a significant development within the tradition of what is now known as Systemic Functional Linguists [sic]…. If we are ever going to be able to understand the relationship between context of situation and language form, *discourse community* and *genre,* as dynamic rather than static notions, it will have to be part of the linguistic model that we utilize.

The ESP approach also provides a substantial body of work in terms of analyses of various academic and professional genres. It may be claimed then that the inclusion of a Swalesian approach to genre within a Hallidayan model of text and context and identifying important aspects of social practice, as in my study, provides a coherent framework for the description of an institutionalised social genre, such as the medical case report, within the academic and professional context in which it is used. The way in which such a framework is envisaged is dealt with in Chapter 3.

2.2.2.4 Genre and text type

All of the theoretical approaches discussed above analyse language variation in terms of social context and function. The SFL and the ESP approaches also relate the organisational stages of a genre to characteristic lexicogrammatical patterns, with the former often considering the relationship between genre and text as being deterministic (e.g. Eggins 2004). A completely different approach is taken by Biber (1989, 1995) and Biber and Finegan (1986) who use quantitative multidimensional methods to distinguish text types, which are defined on the basis of linguistic criteria only. The co-occurrence patterns derived in this way are then interpreted in terms of situational and social functions. This allows registers to be dealt with at differing levels of generality and with variation both within and across genres. Biber (1989: 39) regards "genre and text type categorizations as having different theoretical bases, so that they are both valid but distinct text constructs". While text types are defined primarily in terms of linguistic features, genres are defined in terms of external features such as communicative purposes (Biber 1989; Taavitsainen 2001). Lee (2002: 250) explains the distinction as follows:

> two texts may belong to the same text type (in Biber's sense) even though they may come from two different genres because they have some similarities in linguistic form (e.g. biographies and novels are similar in terms of some typically past tense, third-person narrative linguistic features).

Pilegaard and Frandsen (1996: 2) also make the distinction between genres ("text genres") and text types on text-external and text-internal criteria, adding the criterion that text types may be associated with individual text parts and text genres with complete texts. A text type such as the Problem-Solution pattern can be associated with a range of genres, as indicated above. Paltridge (1996, 2002), giving examples of text types such as Problem-Solution, exposition and argument, shows how useful it is in the classroom to be able to approach texts from the perspectives of both genre and text type. This is also clear from the work of Dudley-Evans (1987) and Yunick (1997). Flowerdew (2003: 492) compares "the more delicate lexicogrammatical positioning of moves within the Problem-Solution pattern" with the "broad strokes" of genre analysis. Her analysis of student engineering project reports (Flowerdew, L. 2000) provides a detailed example of this relationship.

Bruce (2008a: 8) draws on the work of Pilegaard and Frandsen (1996) in proposing a synergistic relationship between what he terms social genres ("socially recognized constructs according to which whole texts are classified in terms of their overall purpose") and cognitive genres (text types that function, for example, "to recount sequenced events, to explain a process, to argue a point of view"), describing the latter in terms of the procedural knowledge that includes discourse patterns, or formal schemata, as discussed in 2.2.2.3. Bruce follows Quinn (1993) in distinguishing four cognitive genres, namely report, explanation, discussion and recount, linking them with the four text types identified in academic writing by Biber (1989), namely, Learned Scientific Exposition, Learned Exposition, General Narrative Exposition and Individual Persuasion respectively. In Bruce's model also, a text representing a social genre may frame one or more than one cognitive genre. Bruce shows that including cognitive genres in a model of discourse analysis allows more general cognitive elements to be represented. Swales, as explained above, has suggested these elements to be an important aspect of genre. Moreover, it would provide a mediating level between genre structure and lexicogrammatical patterns, the lack of which is seen to account for the poor "fit" between them found by Biber (1989) and Paltridge (1997). This theoretical extension of the concept of genre would account for the important role of text types (cognitive genres) such as that linked with the Problem-Solution pattern in the case reports examined in the current study. This pattern, together with the General-Particular discourse pattern, is described and compared across the two corpora in 4.3.3 and 4.4.2.

2.2.2.5 Genre variation and continuity

An understanding of how texts can be understood as belonging to a particular genre is foundational in a study based on genre analysis and it will be important to decide whether differences between the professional corpus and the student assignments do indeed constitute a difference in genre.

Notions of conformity and of change in relation to genre have been a focus of discussion in the research literature. Typification, or 'generic integrity' as Bhatia (1994b) terms it, is seen by some genre scholars as relating to recurring socio-rhetorical situations. For others it is based on conventionalised and standardised language behaviours in various settings (Bhatia 2000). Nevertheless, neither rhetorical situations nor genre forms are static. Thus, in response to a change in socio-cognitive need, changed or even new genre forms can be produced. On the other hand, within broad genre boundaries, established genre forms may combine to form new hybrid forms through a process of mixing and embedding. There is a propensity for this to happen because any genre has more than one purpose (Swales 1990). Where purposes overlap, genre colonisation can easily occur (Bhatia 1994a). Examples of this process include academic introductions, which occur across a variety of disciplines (Bhatia 1997), and the colonising of professional genres by the genre of advertising in university prospectuses (Fairclough 1993). The notion of colonisation is insightful in explaining the relationship that appears to exist between introductions in research articles and in the medical case reports in this study, as the analysis in Chapter 4 will show.

According to Swales (1990: 46), genre membership is based on two features. The primary "criterial feature" of genres, namely a set of shared communicative purposes, has been discussed above. In addition to this feature, Swales invokes prototype theory as a means of determining whether a particular text can be categorised as a member of a genre. Prototypes are the most typical members of a family (Armstrong *et al* 1983). So, for instance, a *chair* is a prototype item of furniture. This approach is in direct contrast with the better established definitional view of categorisation based on a set of defining features which distinguish between items that are members of a category and those that are not. Paltridge (1995: 394) explains how the notion of prototype may be applied to assigning texts to particular genres:

> the closer the representation of a genre is to the prototypical image of the genre, the clearer an example it will be as an instance of that particular genre. The further away it is from the central prototypical image, the more fuzziness there will be and the less clear-cut an example of the particular genre the representation will be.

Swales, as already indicated, denotes communicative purpose as the criterial property of a genre but also takes properties like form and structure into account in identifying how prototypical of a particular genre a specific text may be. Combining these two approaches "allows the genre analyst to find a course between trying to produce unassailable definitions of a particular genre and relaxing into the irresponsibility of family resemblances" (Swales 1990: 52). Paltridge (1997) states that prototype theory frees the analyst from having to call every new variant a new genre. It provides a principled way of accounting for variations between particular case reports (where, for example, the moves may follow different orderings) and between exemplars of particular moves (where there may be variation in the lexicogrammatical patterns) in the analyses of the professional texts that are reported on in Chapter 4.

Al-Ali and Holme (1999: 15) point out that genre prototypes are constantly open to "remodelling by context". The question arises as to what extent this remodelling can take place before a new genre or sub-genre is identified. This is a question that is relevant to the corpora examined in the current study since the differences between the context of the expert and novice case reports might mean that they should be classified as different genres or sub-genres. Freedman *et al* (1994: 221), in comparing student writing produced in the context of a simulation with workplace writing in the field of finance, make a strong claim that "school writing is and must remain radically distinct from workplace writing" because of the difference in context and purpose. They therefore call the financial analyses produced by the students a different genre from similar professional texts. The contexts of the professional case reports and the student assignments in the current study will be examined in Chapter 4, where this issue will be discussed.

While accounting for genre variation is necessary in any genre analysis, understanding genre continuity also becomes important when the acquisition of a new discourse by novice writers is being investigated. Genre continuity is generally explained by means of the Bakhtinian concept of intertextuality (e.g. Berkenkotter 2001; Berkenkotter and Huckin 1995; Orlikowski and Yates 1994; Selzer 1993). Although Bakhtin does not actually use the term

'intertextuality' himself, the term having been coined when Bakhtin's ideas were introduced to the West (Fairclough 1992b; Selzer 1993), he explicates the notion as follows:

> Any concrete utterance is a link in the chain of speech communication of a particular sphere…. Each utterance refutes, affirms, supplements, and relies on the others, presupposes them to be known, and somehow takes them into account (Bakhtin 1986: 91).

Thus every text incorporates in itself a dialogue with other texts and writers. One of the ways in which this happens is in terms of genre. For example, Devitt (1991) describes how in the accounting profession recurring rhetorical situations bring about the production of texts which reflect the form of the previous texts written in the same situations. Even while writers are constrained by the discourse community in this way, the immediate context can provide new codes and an opportunity to use codes in new ways (Porter 1986).

Fairclough (1992d) distinguishes between 'manifest' and 'constitutive' intertextuality, the former referring to intertextual relations between earlier and later texts such as quotation, while the latter refers to relations between texts and conventionalised practices such as genres and discourses (Scollon *et al* 1997). Fairclough suggests the term 'interdiscursivity' for constitutive intertextuality. It is through intertextuality and interdiscursivity that new genres are able to evolve and existing genres are referred to. The concept of interdiscursivity can be seen to underpin the understanding of identity as it is constructed by language since discourse choices are made by drawing interdiscursively on available genres and discourses (Ivanič 1998). Both types of intertextuality are evident in the student texts and can contribute to an understanding of how novice writers acquire a new genre.

Intertextuality not only accounts for the notion of genre continuity. It has also been evoked to account for the existence of genres as, on the one hand, static and structurally fixed and, on the other, as dynamic and emergent. Briggs and Bauman (1992) show how, when the distance between texts and genre (the intertextual gap) is minimised, highly conventional and traditional texts (such as the medical case report) result, while when the intertextual gap is maximised as in the world of literature, creative and innovative texts result. An explanation for the tendency of the intertextual gap to be reduced in the case of the reports examined in this study is to be found in the notion of ideology, which Lemke (1985) invokes to explain how social relations constrain intertextuality. I will deal with this concept briefly in the following subsection.

2.2.2.6 Genre and ideology

As discussed in 2.2.2.2, Martin (1984) has proposed distinguishing genre and register as two different semiotic systems existing in addition to that of language. He goes further to suggest that ideology should be seen as an additional level of context beyond that of genre (Martin 1986a, 1992). The role of ideology is defined and explained by Eggins (2004: 10-11) as follows:

> Whatever genre we are involved in, and whatever the register of the situation, our use of language will also be influenced by our ideological positions: the values we hold (consciously or unconsciously), the perspectives acquired through our particular path through the culture…. In other words, to use language at all is to use it to encode particular positions and values.

Martin proposes ideology as an additional stratum in order to account for the fact that genres are not distributed evenly across social groups. An example of this would be the genres of the academy, which are restricted to experts within their particular disciplines. Ideology as a separate stratum also explains why not all patterns can be predicted from register and genre. Thus Martin's (1986a) analysis of two environmental texts shows how, within the same genre and field, patterns of language are chosen that encode culling and hunting as murder on the one hand and farming on the other. In analysing texts, Eggins (2004) uses the level of ideology to integrate the findings of the various analyses at the levels of register and genre. She suggests that ideology is the most abstract level of context, although it is difficult to see how levels of abstraction can be distinguished as such. It is rather the case that Martin's model suggests higher and lower levels of semiotic, related as indicated in the figure below, with language the expression form of register, language and register the expression form of genre, and language, register and genre the expression form of ideology.

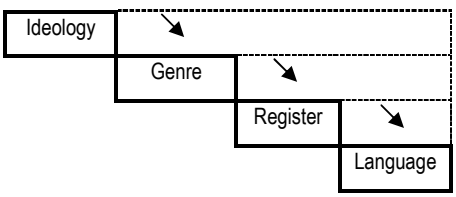


Figure 2.4 Language in relation to its connotative semiotics (Martin 1986a: 227)

Because none of the connotative semiotics (i.e. ideology, genre and register) has its own expression form, "it make[s] meaning by skewing choices in lower level semiotics to produce patterns in text that could not be predicted in terms of the lower level semiotic alone (Martin 1986a: 227). This will be illustrated in 3.1.2.3.

Martin's approach to ideology seems to involve a neutral understanding of the concept. According to Martin and Rose (2003), while systemic functional linguists view ideology as implicit in all language choice, the focus is on community rather than hegemony. This view appears to have something in common with that of Van Dijk (1997), who cautions against the assumption that ideologies are developed by dominant groups to legitimise and maintain their dominance. He sees ideologies rather as individual solutions to specific problems which are then shared with the group to which the individual belongs. This results in the members of the group tending to respond in the same way in similar situations, working cooperatively within the group and following similar ways of interacting with outsiders.

The sort of understanding of ideology outlined above contrasts with the view of writing espoused by researchers within Critical Discourse Analysis, or CDA, (e.g. Fairclough 1989, 1992a, 1993; Gee 1990; Kress 1991, 1996; Luke 1994), where social practices, events and texts are explored in terms of power and hegemony (Fairclough 1992b) and the focus is on exposing this - what has been termed analysis with an attitude (Hyland 2002f; Van Dijk 2001). The relationship between texts and society is understood in terms of Foucault's (1982) 'orders of discourse', which are "more or less unstable configurations of more or less discrete genres, types and elements in relationships of combination, exclusion, hierarchy etc." (Fairclough 1990: 15). These orders of discourse are ideologically shaped by dominant groups and embedded in ideological assumptions. A relevant example given by Fairclough of an order of discourse is that of medicine as a social institution, in which the different discourse practices (such as textbooks, articles, interviews and case notes) exist in relation to each other as different means of interaction. Using the patient–doctor interview as one example, Fairclough (1995) argues that particular beliefs and relationships are implicit in discourse conventions and assume the appearance of common sense. However, because discourse actually both represents and constructs society, each instance of discourse is doing ideological work and generally reproducing the dominant culture (Lemke 1995; Paré 2002; Threadgold 1989; Wodak 1996). Social theorists Bakhtin (1981) and Bourdieu (1991) also see "authorised" discourses as being linked with the power invested in particular groups. Bourdieu (1991: 230) uses the term "symbolic capital" to capture the notion of the way in which disciplinary discourses "reinforce the legitimacy of certain practices and imbue

them with authority; they become capital in an asymmetrically structured symbolic marketplace" (Hyland 2004a: 157).

As will be made evident in the discussion below, much of the existing research on medical discourse has adopted what Martin and Rose (2003: 264) term a "deconstructive" approach and has concerned itself with ideology in terms of hegemony. Martin and Rose do not discount the approach underpinning CDA research, with its notion of hegemony in terms of domination and struggle, but suggest that it needs to be complemented by what they term "productive" work. This latter approach has its focus on community in terms of exclusion and inclusion, "taking into account how people get together and make room for themselves in the world in ways that redistribute power without necessarily struggling against it". The current study, in attempting to understand how novice writers in a particular context are apprenticed within the community and how they begin to acquire the relevant professional and disciplinary practices, seeks to contribute to research on medical discourse in terms of this latter approach.

This research aims to advance the understanding of how identity as an insider may be described in terms of the ability of writers to use the appropriate genres of the discourse community. This approach is taken because genre as an expression of communicative purpose is central to an investigation of identity in writing. However, as has been proposed in 2.1, genre is not the only way in which writer purpose is conveyed or membership of a discourse community signalled. While genre may express purpose at a macro-level, there are also micro-level principles by means of which writers convey and readers recognise purpose. These are functional elements, "potentially separable from genre and audience" (Grabe and Kaplan 1996: 209), which include such features as Gricean maxims, speech acts and some metadiscourse conventions. It is on metadiscourse as an additional level of the expression of purpose that I focus in the next subsection, showing how this sort of analysis is able to provide further insight into identity in texts.

2.2.3 Metadiscourse analysis

The term 'metadiscourse' refers to discoursal choices that writers use to signal their attitude to their subject matter and their readers and to influence how their readers receive their text (Hyland 2005). In this study the use of metadiscourse analysis provides another means of investigating the differences that appear in novice and expert patterns of interaction in a

single disciplinary field and how identity is expressed within the social context of the discourse community. This analysis is carried out using metadiscourse categories proposed by Hyland (2005), which are discussed below.

Metadiscourse has been variously understood and this has led to the "fuzziness" which Hyland (2005: 16) and others (e.g. Bondi 2005; Swales 1990) have found in the concept. It is this lack of clarity that Hyland (2005) seeks to overcome in his critique of earlier accounts of metadiscourse and his proposed model which, while building on previous work, is nevertheless able to offer a more coherent analytical approach.

One use of the term 'metadiscourse' has been to refer to text reflexivity or metatext (e.g. Ädel 2006; Bunton 1999; Mauranen 1993a, 1993b, 2003). Hyland (2005: 17) argues that showing an awareness of text is actually in itself reader-oriented since it "reveals the writer's awareness of the reader and his or her need for elaboration, clarification, guidance and interaction" and thus metadiscourse is more often taken also to include interactive elements such as writer attitude (e.g. Crismore 1989; Crismore *et al* 1993; Crismore and Farnsworth 1990; Vande Kopple 1985). Hyland himself adopts this wider definition.

Some of the confusion regarding how metadiscourse has been understood can be accounted for as arising from two related problems (Hyland 2005). Firstly, metadiscourse has been defined by some researchers, for example Beauvais (1989), Crismore *et al* (1993) and Vande Kopple (1985), as non-propositional material. Secondly, propositional content has tended to be seen as primary compared with 'meta'-discourse which is judged to be secondary (Ädel 2006; Hyland 2005; Mao 1993).

How to distinguish between a proposition and non-propositional material is not always clear. In formal semantics a proposition is defined as a statement that can be true or false but, as Mao (1993: 267) points out, metadiscoursal expressions can also be untrue, as when the marker "*I hypothesize*" introduces an acknowledged fact. In addition, an expression showing how the statement following it should be understood, such as "*I believe that*…" establishes the writer's stance and therefore carries some of the content of the message (Hyland 2005). It is thus difficult to see how propositions can be clearly distinguished from metadiscourse, neither can they be said to be on a different level of meaning as suggested by Vande Kopple (2002), since

> the *meaning* of a text is not just the propositional material or what the text could be said to be *about*. It is the complete package, the result of an interactive process between the producer and receiver of a text in which the writer chooses

> forms and expressions which will best convey his or her material, stance and attitudes (Hyland 2005: 22).

Luukka (1994) questions whether the proposition as traditionally understood can be held to be relevant when texts are viewed as communicative acts. Adopting this functional view means that metadiscourse has an essential role in making content accessible and persuasive to the reader (Hyland and Tse 2004b). It should therefore, Hyland (2005) suggests, not be seen as secondary but rather as specialised.

In studies by Crismore and Farnsworth (1990), Hyland (1998d, 2004a) and Mauranen (1993a), Halliday's metafunctions (see 2.2.1) form the source of metadiscourse categories. Here content is linked with ideational meanings, and metadiscourse features with interpersonal and textual meanings. There are problems with this approach, however, since it treats propositional content, interpersonal elements and textual elements as discrete components of text (Hyland 2005) and as Hyland (2004b: 137) states:

> Unlike propositional and interpersonal meanings, which orient to extra-linguistic phenomena, the textual function is intrinsic to language and exists to construe both propositional and interpersonal aspects into a linear and coherent whole.

Hyland (2005) confines Halliday's influence on his new metadiscourse model to an understanding of the holistic nature of discourse and a view of meaning making in a clause as operating simultaneously in terms of different functions. Thus:

> If metadiscourse is the way writers engage their readers and create convincing and coherent text, then we have to acknowledge that it is about *interaction* in text. It expresses the interpersonal dimension and how both interactive and textual resources are used to create and maintain relations with readers (Hyland 2005: 27).

Hyland makes it clear that the concept of metadiscourse *per se* is not part of the systemic functional model even though there are overlaps between the two, such as exemplified in, on the one hand, Halliday's linguistic categories of conjunctive relations and modality and, on the other, transitions and hedges. There is a discrepancy between the meanings of 'textual' and 'interpersonal' in metadiscourse research and in Halliday's use of the terms. Thus, in the former, 'textual' is applied to elements referring to the organisation of the text, while in SFG it includes "general text-creating strategies, such as theme/rheme structure, old/new information and the broad area of cohesion" (Ädel 2006: 17). For metadiscourse analysts the interpersonal dimension of text is a wide concept embracing all the resources,

including the textual, that are used to engage with the reader, while Halliday's view of the interpersonal is defined in terms of mood and modality systems.

The duality of propositional content and interpersonal features in earlier metadiscourse studies has also been critiqued by Hood (2004), who advocates the use of Appraisal theory as part of the systemic functional model in order to provide a better motivated explanation of interpersonal meaning in texts. Appraisal is "an approach to describing and explaining the way language is used to evaluate, to adopt stances, to construct textual personas and to manage interpersonal positioning and relationships" (White 2001: *Overview*). Propounded originally by Martin, the theory proposes a prosodic analysis of evaluative language available to writers or speakers as a set of options categorised in terms of Affect (construing emotion or mental state), Judgement (evaluating people and behaviour in terms of culturally determined expectations) and Appreciation (evaluating aesthetic value in a culture) (Martin 1997, 2000a; White 2003). What has been discussed in the literature as hedging (Hyland 1998a), stance (Conrad and Biber 2000) and evidentiality (Chafe 1986) are dealt with in the Appraisal system by two sets of resources, namely, Engagement (construing the writer's/speaker's degree of commitment to the appraisal expressed and acknowledgement of other voices in the text) and Graduation (grading evaluations by intensifying meanings or rendering nongradable categories more fuzzy) (Martin 2003).

Martin suggests that the Appraisal system accounts for aspects of power and status as well as solidarity in the interpersonal function. These aspects are of importance in medical writing. Technicality, the degree to which the discourse uses technical meanings, can be accounted for by the additional system of Involvement (Eggins and Slade 1997). Again this is likely to be an important element where expert and novice writers are being compared. All these sorts of interpersonal meaning are distributed through a text and have the effect of indicating the attitudes of the writer and positioning the reader to take on a particular interpretation or point of view.

Using the Appraisal system to account for lexical evaluation in discourse is thus a possibility that needs to be considered in a study of writer identity. However, a comparison of Appraisal with metadiscourse analysis suggests that the former represents a different level of analysis (Hyland 2005) and that this level of delicacy may not necessarily be helpful. Following Crismore *et al* (1993), Hyland shows that metadiscourse analysis is generally viewed as being confined to instances that relate to propositions, so that qualifiers of individual lexical items which convey writer attitude (e.g. *frugal* versus *stingy*) and which would be important in an analysis using the Appraisal system, are not regarded as examples

of metadiscourse. He asserts that widening the concept of metadiscourse to this point would render it no longer descriptively useful because "almost any linguistic choice conveys an attitude of some kind, expressing our likes and dislikes, our approval and disapproval" (Hyland 2005: 31). Thus the concept of metadiscourse seems to present a more robust approach to interactions between writer and reader as explicitly signalled in text. It is, according to Hyland and Tse (2004b: 156), "an intuitively attractive concept as it seems to offer a motivated way of collecting under one heading the range of devices writers use to explicitly organise their texts, engage readers and signal their attitudes to both their material and their audience".

A range of research has been undertaken with regard to metadiscourse and its functional role in a variety of academic texts and genres including abstracts (Busà 2005), research articles (Giltrow 2005; Hyland 1996; Vold 2006), textbooks (Crismore 1983; Freddi 2005; Hyland 1994, 1999c, 2004a; Samson 2005) and dissertations (Hyland 2004b). Metadiscourse has been shown to be essential in different types of persuasive and argumentative discourse (Barton 1995; Crismore 2004; Dafouz-Milne 2003, 2008; Hyland 1998b; Neff *et al* 2003). It is present in medical texts from an early period of English (Taavitsainen 2000) and may have different functions in emerging genres as opposed to established genres (Skulstad 2005). Studies of metadiscourse in texts across cultures and languages (Crismore *et al* 1993; Dafouz-Milne 2003, 2008; Mao 1993; Mauranen 1993b; Moreno 1998) and in L2 texts (Ädel 2006; Cheng and Steffensen 1996; Hewings and Hewings 2002; Hyland 2002e, 2004b; Intaraprawat and Steffensen 1995) have been undertaken. It is not only clear that metadiscourse is an essential element in academic writing but also that writers within particular disciplines use metadiscourse to construct an appropriate context and to refer to shared assumptions (Hyland 1998d, 2004a).

Although this wide ranging research literature indicates the significance of metadiscourse in written texts, Hyland (2005: 6) suggests that the origin of the study of metadiscourse as a matter of style has meant that the theoretical underpinning necessary for "a major analytical approach to written discourse" has been lacking. In order to provide the necessary theoretical understanding of the concept of metadiscourse and to operationalise it, Hyland has revisited the definition of the concept and proposed a new classification system, applying it to texts in a range of disciplines in order to demonstrate how it operates. He emphasises how differences in metadiscourse reflect differences in social and professional identity because the cues given by writers indicate their perceptions of the readers for whom a text is written:

> Differences in metadiscourse patterns may therefore prove to be an important means of distinguishing discourse communities and accounting for the way writers specify the inferences they would like their readers to make (Hyland 2005: 195).

He shows that metadiscourse in different genres such as research papers, popular science articles and textbooks responds to the different purposes of their writers and what they know of their readers.

The metadiscourse subcategories proposed by Hyland are established on the basis of three principles: first, that, while they are "simultaneously enacted aspects of language in use", instances of metadiscourse can be distinguished from instances of propositional content (Hyland 2005: 38); second, that all metadiscourse represents interaction between writer and reader; and third, that metadiscourse comprises relations within the discourse rather than in the real world.

The first two principles have already been touched on in this section. The third, while Hyland explains it in detail with reference to categorising transition as metadiscourse, is of wider relevance in his model. Hyland also applies the principle to frame markers and, according to Thompson (2008), it could be extended to apply to other subcategories such as self-mention and engagement markers. Hyland cites Martin and Rose's (2003) distinction between discourse external and discourse internal roles for transitions (see also Halliday and Hasan 1976). Examples of external and internal transitions below are taken from the professional corpus referred to in this study, the titles of the case reports being indicated by abbreviations for which the full titles are provided in Appendix 1.

In (1), the transition marker (in bold) relates to the unfolding of the argument and is thus internal to the text:

(1) A subpneumonic inflammatory effusion could conceivably be affected by reduced or altered movement of the diaphragm, leading to a more rapid resolution, with fewer sequelae. **On the other hand**, the ability of the asbestos fibres to penetrate the pleura causing an asymptomatic inflammatory reaction leading finally to calcification, could presumably be related to the extreme chronicity of the process, said to be not less than about 20 years and often much longer (*LDCA*).

The second extract, by contrast, provides information regarding real world experience, with transitions between the propositions therefore being classified as external:

(2) It was first described by Stout and Murray in 1942 **and** is composed mainly of pericytes, contractile cells normally found surrounding capillaries and post capillary venules. It is a tumour of adult life **and** is rare in children (*PHPE*).

In identifying transition markers used as metadiscourse, Hyland emphasises the importance of distinguishing between internal and external transitions and confining the role of metadiscourse to the former.

Hyland's (2005) analytical scheme takes up Sinclair's (1981) notion of two planes of discourse, the interpersonal and the textual, and also follows Thompson and Thetela (1995) in labelling the categories of metadiscourse as 'interactive' or 'interactional' (see also Thompson, G. 2001). Interactive features are those that organise discourse in relation to what the writer understands to be the reader's needs, structuring texts to take account of the shared practices of the disciplinary discourse community with regard to matters of argument, interpretation and tone. This sort of strategic skill allows the writer to establish authority and credibility within the community and the text, in order to meet what Hyland terms "adequacy conditions" (Hyland 2005: 90). Alongside of these are interactional features. Interactional metadiscourse creates and responds to the relationship between writer and reader, allowing the text to meet "acceptability conditions" (Hyland 2005: 91). The writer is able to present an acceptable persona by means of a demonstration of insider status within the discipline, showing himself or herself to be "a reasonable, intelligent, co-player in the community's efforts to construct knowledge and well versed in its tribal lore" (Hyland 2004a: 13). This, suggests Hyland, is achieved by conveying varying weightings of conviction and confidence and by indicating an acceptable attitude to propositions and to the reader.

Hyland's conception of interactional features is wider than that originally proposed by Thompson and Thetela, including as it does stance and engagement in addition to writer roles. Most importantly, the choice of nomenclature emphasises the role of both types as interpersonal in function and so relevant to purpose and identity. Hyland abandons the earlier labels of 'interpersonal' and 'textual' for the two categories of metadiscourse because these were previously viewed as "discrete and separable", with textual features being seen "as ends in themselves" (Hyland 2005: 27), and uses the new terms in order to emphasise the complementary role the two categories of metadiscourse play in expressing the writer's interaction with the reader. These categories are represented in Table 2.1 below, showing Hyland's classification of the interactive and interactional dimensions described above into five subcategories each. The example provided in each subcategory in the table is drawn from the corpus of professional radiology case reports described in this study.

Table 2.1 Interpersonal model of metadiscourse (from Hyland 2005: 49)

Category	Function	Example
Interactive	*Help to guide the reader through the text by*	
Transitions	expressing relations between main clauses	No evidence of exposure to asbestos could be obtained. Contact with the mineral would, **in any case**, be most unlikely to cause this x-ray appearance… (*LDCA*).
Frame markers	referring to discourse acts, sequences or stages	**This article describes** an unusual cause as a result of tortuosity of the internal carotid artery (*TICA*).
Endophoric markers	referring to information in other parts of the text	Extensive dystrophic calcification was present (**Figure 3**) (*HTGL*).
Evidentials	referring to information from other texts	**Pollack and Popky** reported small peripheral tumours in five of nine patients (*SSRH*).
Code glosses	elaborating propositional meanings	He was given various diagnoses **such as** transient ischaemic attacks and migraine by different neurologists (*BAFE*).
Interactional	*Involve the reader through intruding and commenting on the text by*	
Hedges	withholding commitment and opening dialogue	**About** 0.01 % of mycobacterial infection involves the skull (*PCTU*).
Boosters	emphasising certainty or closing off dialogue	This case report illustrates a case of cardiac volvulus which was **clearly** evident radiologically (*CTOR*).
Attitude markers	expressing writer's attitude to proposition	Learning to recognise these diagnostic pitfalls is an **important** aspect of the interpretation of medical diagnostic images (*DCAR*).
Self mentions	making explicit reference to author(s)	**Our** patient is unusual as the cysts disappeared so rapidly (*DBCY*).
Engagement markers	explicitly building relationship with reader	The presence of any breast mass in a patient over 50 years of age **should** however be viewed with suspicion (*ENPC*).

The sub-categories are neatly balanced between the interactive and the interactional. However, the status of evidentials as interactive is open to critique (Thompson 2008). Hyland appears to catalogue evidentials as interactive in order to distinguish between attitude to propositions, which is epistemic, and the more affective attitude markers, which clearly fall into the interactional category. However, in view of the characteristics he establishes for interactional features, as outlined above, in which he makes it clear that they are oriented to the needs of the writer, evidentials might be thought to fit better in this category than with the interactive devices.

This is borne out in the account Hyland gives of the functions of evidentials. These include providing a context of persuasion, aligning the writer with a particular theoretical approach and building a credible persona (Hyland 2002a). This seems to provide a strong case for arguing that evidentials are actually interactional in function. Furthermore, evidentiality is close in meaning to epistemic modality, and writers often use reporting verbs when presenting propositions and their sources, indicating to what extent the writer feels the claim is justified. Hyland (2005) himself links evidentials with the interactional devices of hedging and self-mention in his analysis of how the *ethos*, or credibility, of the writer is constructed in annual reports. Similarly, in his discussion of postgraduate theses and dissertations, Hyland (2005: 56) demonstrates how evidentials, together with use of engagement markers and self

mention, allow students to display an ethos "that values a disciplinary research tradition". If evidentials are indeed interactive, one might expect evidentials to be involved in contributing to the *logos* of a text, "the use of reason in persuasion" (Hyland 2005: 75), rather than to the *ethos (*Thompson 2008). The categorisation of evidentials as interactional is also supported by the sort of categories used by other analysts such as Dafouz-Milne (2008), who makes use of the corresponding category of attributors as an interpersonal rather than a textual marker.

Hyland is careful to point out that his model represents only explicit surface features of metadiscourse in text and that it can provide only an indication of the writer's intentions rather than a comprehensive account. He nevertheless argues pertinently that:

> It helps us to understand the extent of authorial self-awareness, how far writers are able to see their texts as an outcome of writing (rather than as a study or theory in the world), and to compare the ways writers employ this awareness in crafting texts in different genres, cultures and communities…. [I]t is a useful means of revealing the meanings available in the text and perhaps some of the assumptions writers hold about the issues they address and the ways they see their audiences (Hyland 2005: 58-9).

Thus metadiscourse analysis is able to provide insights into the purpose and identity of the writer that, while they are associated with that of the discourse community and genre, may nevertheless be seen to be at a different level from the general purpose which predicts the choice of genre (Grabe and Kaplan 1996). The way Hyland's model is used in the analyses carried out in Chapter 4 of this study is described in detail in the next chapter (3.1.4).

Having surveyed useful theories for a social approach to discourse above, I turn in the next section to describing how some of these have been applied to studies of experts and novices writing in the disciplines.

2.3 WRITING IN THE DISCIPLINES

An investigation of identity and purpose in the writing of students and professional practitioners in a single discipline will need to draw on the theoretical aproaches outlined above. However, these theories are best understood and applied within an approach to writing which sees academic and professional disciplines as discourse communities and addresses how novices learn to take on an identity within these communities. Accordingly this section will explore the notion of the discourse community, showing that, although it is contested, various studies have found it useful in helping to explain how students learn to

write in new contexts, many of which are genre based. An account is presented of the way in which first the discourse community (2.3.1) and then student writing in the discourse community have been described (2.3.2). The section concludes with a brief overview of the way genre analysis has been used in previous studies to describe academic writing (2.3.3).

2.3.1 The discourse community

The discussion of genre theory above has referred frequently to the notion of discourse community because "genres are the properties of discourse communities" (Swales 1988: 211). Bloor (1998) expresses the same idea when she calls discourse communities the parents of genres. 'Discourse community' has become a term widely used to refer to a community that is defined by its uses of language and that shares interpretive practices (Beaufort 1997; Berkenkotter and Huckin 1993; Bizzell 1982, 1992; Hyland 2004a; McCarthy 1987; Swales 1988, 1990). The notion of discourse community has implications for identity because it sees a community member as being part of a rhetorically constituted group of writers and readers (Hyland 2002f). As Hyland notes:

> writers typically position themselves and their ideas in relation to other ideas and texts in their communities and this helps them both to legitimate their membership and establish their individual identities through discourse…. The notion of *discourse community* has therefore become a powerful metaphor in joining writers, texts and readers in a particular discursive space (Hyland 2002f: 41).

This conceptualisation of the link between genre and discourse community is crucial within the social framework to an understanding of the relationship between text and the speaker/writer and in accounting for rhetorical purpose and writer identity (Bloor 1998). Considered in this way, students in a hospital who are required to write reports on a particular case are, by so doing, acquiring the communication practices of a medical discourse community.

The notion of discourse community, or rhetorical community, is a social construct (Bruffee 1986; Miller 1994; Swales 1993) and its members do not necessarily share a particular place or time, although Swales (1998) cautions against a reductionist view of a discourse community existing only through texts. What characterises the concept of the discourse community is that its members are seen to share purposeful goals (Borg 2003; Swales

1990). The community metaphor has also given rise to the idea of the 'disciplinary community' and of the 'community of practice'. Becher (1981, 1987), drawing on work by the anthropologist Geertz (1983), has shown how various disciplines differ in terms of culture, epistemology and discourse, forming, as it were, different "academic tribes" with their own "territories" (Becher and Trowler 2001).

One early description of a disciplinary community is found in the work of Kuhn, who defines a scientific community as "men [sic] who share a paradigm" (Kuhn 1970: 176), in other words, the producers and validators of scientific knowledge. According to Kuhn, membership of a scientific community or disciplinary matrix can be identified by means of criteria such as membership of professional societies, shared techniques, conference attendance and patterns of citation. The members of the community have amongst their goals the training of new members. Thus the scientific community is responsible for what Toulmin (1972: 159) calls "enculturation" of novices into the discipline. Toulmin indicates that this process is applicable to any disciplinary activities, not just to science.

Enculturation or apprenticeship is also seen as the way learning takes place in a 'community of practice' (Brown *et al* 1989; Lave and Wenger 1991; Scollon 1998). Here the emphasis is on collaboration and social interaction, with learning taking place through situated activity and peripheral participation in the community and participation bringing about transformation as well as reproduction of social practice. Drawing on this work, Prior (1994, 1998) argues for a 'sociohistoric' approach to the disciplines, describing them as evolving entities. New members are made aware of the histories of the discursive practices of the community and that they are not fixed. Through negotiation with the experts in the discipline and their authoritative discourses, newcomers are able to bring their own experiences and insights, their "internally persuasive discourse" (Prior 1995b: 320), into their writing in the academy. Through a Bakhtinian dialogue, experts and students may shift from their original positions to new positions that are satisfactory to both. As Ivanič (1998: 82) points out:

> the value of studies of disciplinary discourse communities is not that they produce a taxonomy of their characteristics; but that they uncover in increasing degrees of subtlety and sophistication the social processes at work in such communities.

The construct of community and its associated genres has proved to be a powerful one, assisting us in understanding issues around academic and professional writing, as in the

work of Bargiela-Chiappini and Nickerson (1999), Freedman and Medway (1994), Gunnarsson *et al* (1997), Hyland (2004a), Johns (1997), MacDonald (1994), Porter (1986) and others. Beaufort (1997) draws on data from the workplace to show the validity of the notion of discourse community. Hyland (2002d: 121) summarises its importance for a large body of recent writing research as follows:

> by focusing on the distinctive rhetorical practices of different communities, we can more clearly see how language is used and how the social, cultural, and epistemological characteristics of different disciplines and professions are made real.

Ivanič (1998: 83) finds the notion of the discourse community particularly useful in considering writer identity, defining a person's identity as "constructed by their membership of, their identification with, the values and practices of one or more communities."

Nevertheless, the concept of community has also been criticised as being vague and utopian (Faigley 1986; Paré 1993). Harris questions the usefulness of a concept that he sees as "ghostly and pervasive" (Harris 1989: 15). How can this concept, he asks, accommodate the need to 'initiate' our students into "real groupings of writers and readers", groups which are sites of both consensus and conflict? Others (e.g. Canagarajah 2002; Chin 1994b; Nystrand 1990; Prior 1998) view the concept as deterministic and static, "a way of labelling individuals as insiders or outsiders, as people who either have the requisite values, knowledge, and skills to belong, or lack these necessary qualifications" (Cooper 1989: 204).

In fact, it is clear that no simple homogeneity or consensus can be claimed for discourse communities (Bizzell 1992; Jolliffe and Brier 1988; Miller 1994; Rafoth 1990). One reason for this is that people are typically members of multiple discourse communities (Bex 1996). Some scholars (e.g. Casanave 1995; Killingsworth 1992) have examined actual discourse communities to explore the variety and conflict that exists in them. Clark (1992) and Starfield (2001) explore in the academic discourse community the conflict that results from power relations within the wider social context. Miller (1994) views the community as a site of both conformity and conflict, using Giddens's (1984) concept of 'duality of structure' in structuration theory to explain this. For Giddens, social structure is a virtual entity existing in its instantiations, which in turn reproduce the structure, making it available as a resource for further use (see Giltrow and Valiquette 1994). This is why, Miller suggests, the community

tends to conformity and homogeneity while at the same time, because it is constituted through the actions of individuals, it is fundamentally heterogeneous. As Thralls and Blyler (1993: 8) explain, discourse communities have a normative force with regard to written communication, while at the same time they are "shaped by their discursive practices and the discourses they generate". Swales (1993) has also emphasised instantiation and engagement as the cohesive forces within discourse communities.

It is thus clear that there is general acceptance of the fact that discourse or rhetorical communities are not homogeneous and closed but rather open to change (Bhatia 1999; Bruffee 1984; Hyland 2004a; Porter 1986; Prior 1994, 1998). One way in which change occurs within a discipline is exemplified by Sullivan (1996), who shows how, in a particular journal article, the writer contributes something new to the field by challenging a single aspect of accepted disciplinary orthodoxy (methodology) while at the same time establishing his legitimacy to contribute to discussion within the discipline by means of a display of other aspects of this orthodoxy (narrative knowledge, hierarchy and disciplinary knowledge). Opportunities to bring about change within the genres shared by a particular discourse community seem thus to require some demonstration of discourse expertise.

As novice writers in their field, the radiography students, whose texts target the recognised medical genre of the case report, are nevertheless members of a discourse community that comprises radiographers, radiologists, and academics, "individuals with diverse experiences, expertise, commitments and influence" (Hyland 2004a: 9). Not all members of the community have the same ability to bring about change within genres and the social contexts in which they are located. Rafoth (1990) shows how the notion of discourse community goes beyond a descriptive function to an explanatory significance when it is used to show how language operates to define issues of identity and power. The concept is thus useful in making visible for us the social context of the student writer as she (most of the students in the radiography class are female) grapples with sometimes conflicting purposes and identities in the writing task at hand. One of these purposes will be the production of a piece of writing for assessment since, as Dias *et al* (1999: 44) suggest, student writing is always "characterised by an inherent and inevitable duality. On the one hand, such writing is 'epistemic'…. At the same time, however…scripts are produced as ways of enabling … students to be graded." The context of situation for the report assignments is discussed in Chapter 4. Linked with this is another interesting contextual consideration for the texts explored in my study. The students were asked by their lecturers to reflect personal involvement with the patients they discuss and this was done in order to resist a perceived lack of empathy for patients on the part of radiographers. How this is achieved will also be

explored in the analysis of their texts in Chapter 4 and the issue taken up again in a discussion of the pedagogical implications of this study in Chapter 5.

To return to the notion of expertise, this is specifically addressed in the cognitive tradition, which seeks to understand the composing processes of expert writers in order to make them accessible to novices. Bereiter and Scardamalia (1983) suggest the operation of different processing models at different developmental stages of writing. Thus, they distinguish between knowledge telling and knowledge transforming models. In this way they account for the differences evident between school literacy, characterised by reproduction of knowledge, and professional literacy, characterised by use of rhetoric and the positioning of the writer as an authority. In Scardamalia *et al* (1984) and Scardamalia and Bereiter (1985) this theory is extended. Writing is seen as a process of problem solving which involves a dialogue (an internal dialectical process) between a content problem space and a rhetorical problem space. Use of the knowledge telling strategy reveals that the writer is limited to the content space and there is no dialectical process. Geisler (1994), following this 'dual problem space' model, expands on how these problem spaces interact and claims that expertise is achieved when these spaces are represented both in abstract terms and also in interaction with each other. Experts, in other words, see texts not simply as means of saying things but also as doing things like persuading or arguing. Novice undergraduate writers, by contrast, are characterised by a naïve representation of the rhetorical problem space. Thus:

> Textbooks, still the mainstay of the curriculum, are interpreted as containing the domain content upon which students will be tested. Writing, on the rare occasions it is used, serves to duplicate the knowledge structure of these texts…. Knowledge still has no rhetorical dimension (Geisler 1994: 87).

While this comparison of novice and expert writers seems to suggest a basis for understanding how the writing of radiography students differs from that of the professionals who publish case reports in the field, the cognitive approach is limited in that it does not take the social context into account and assumes that expertise can be defined generally across discourse communities (Beach and Hynds 1990; Bizzell 1992; Faigley 1986). While novice writers do not lack the ability to use generic writing strategies, it seems that local knowledge is important in becoming a competent writer (Carter 1990). As Hyland (2002f: 60-61) states: "The more learners become familiar with the genres and expectations of their target communities, the greater the accumulated store of experiences they can draw on to meet those expectations."

2.3.2 Student writing in the discourse community

One of the first researchers to focus on the social context of students' writing was Shaughnessy (1977) in her study of errors made by "basic writers", whom she suggested were not yet socialised into the discourse conventions of the academic community. Subsequently, the notions of the discourse community and of related concepts have been found to be helpful in exploring how students actually learn to write. Bartholomae (1985) suggests that, because knowledge is situated in the discourse of a particular community, the conventions of the academic discourse community need to be demystified for students. This approach is also taken by others like Belcher and Braine (1995), Berkenkotter and Huckin (1995) and Johns (1997). Other scholars hold that entry to the community is not necessarily through explicit teaching (Dias *et al* 1999; Freedman and Adam 1996; Freedman *et al* 1994). It has been suggested that novices enter the community by means of peripheral participation in its activities (Beaufort 2000; Flowerdew, J. 2000; Lave and Wenger 1991) or through collaboration (Bruffee 1984; Forman and Katsky 1986; Rogers and Horton 1992).

The usefulness of the metaphor of community in teaching academic writing has also been challenged. MacDonald (1994: 15) has suggested that the notion of the discourse community is not helpful when initiating students into the discourse of a particular discipline because the students are involved in "something other than the kind of disciplinary community professionals may share". Casanave (1995) finds that what might be appealing at an abstract level is less adequate when applied to specific groups and Candlin (1998) queries how meaningful the notion of apprenticeship is to students themselves.

Nevertheless, many scholars (e.g. Beaufort 1997; Hyland 1992, 2003a; Johns 1997; Samraj 2000; Woodward-Kron 2004) claim that a grasp of the notion of discourse community can assist students in moving forward when facing writing tasks in new communities and can heighten their awareness of the genre conventions. By learning how to display knowledge of the rhetorical practices of a discourse community, novice writers can be socialised into the community (Herrington 1985; Jolliffe and Brier 1988). Prior (1994, 1995b, 1998) suggests that this display of what he calls 'disciplinarity' is acquired through situated practice within the disciplines, that is, through a complex dialogic process within an immediate local context. This process of disciplinary enculturation involves participants in the community in learning how to represent disciplinarity, in other words, how to represent their identity as

community members (Prior 1991). As Hyland (2004a: 8) expresses it, "[t]exts are the actions of socially situated *writers* and are persuasive only when they employ social and linguistic conventions that colleagues find convincing." This requires among other aspects, the appropriate use of metadiscourse (Hyland 2005) (see 2.2.3).

For student writers who work in their local context and bring with them other literacies, acquiring mastery of the accepted discourse of the field is often difficult. Leibowitz (2000: 22) discusses the gate-keeping role of writing in the academy and points out that "with the best intentions in the world, it is neither very easy nor a very quick process to induct students into [academic] discourse." Lea and Street (1999: 158), taking what they call an academic literacies approach, suggest that student writing could be usefully viewed within the context of "institutional practices, power relations and identities". Adendorff and Parkinson (2001) use this approach to describing how first year students are provided access to or excluded from the scientific discourse community through two different ideological approaches to literacy practices made available to them in laboratory sessions. Paxton (2007) finds that the textbook discourses extended to students in the first year of economics is at odds with the literacy practices of the discourse community. Johns's (1997) 'socioliterate' approach, teaching students how genres are socially constructed in specific contexts, also falls within an academic literacies framework.

One related notion which has been mentioned above is the way the identity of the novice writer is challenged by the requirements of academic or professional demands (Clark and Ivanič 1997; Hyland 2002e; Ivanič and Roach 1990; Ivanič and Simpson 1992; Leki 2000; Prior 1995a). Exploring this idea within the context of adult higher education, Ivanič (1998) suggests that writing is an act of identity and that writers represent themselves through their discoursal choices. These choices are constrained by the discourses to which they have had access and by their expectations of the interpretive practices of the reader. Ivanič's work with adults who are taking on new social identities as students provides interesting parallels with the situation of the radiography students in my study attempting for the first time to write as professionals, although her study focuses on the students as individuals to a greater degree than on their texts.

The notion of intertextuality (see 2.2.2.5) is of importance in a social approach to the learning of academic writing because students have to learn the discourse of the new community (Porter 1986). Bartholomae (1983: 300) suggests that for a student to learn by

writing "[h]e [sic] must become someone he is not…he must locate himself convincingly in a language that is not his own. He must invent the university when he sits down to write." One result of this is that novice writers sometimes, in their attempts to adopt an unfamiliar discourse, keep very close to source texts in their writing and do not adhere to the appropriate conventions in signalling intertextuality (Ivanič 1998). This is clearly demonstrated in the student texts examined in this study and occurs interestingly across both the sections of the text which comprise theoretical discussion and also those which relate to the specific case.

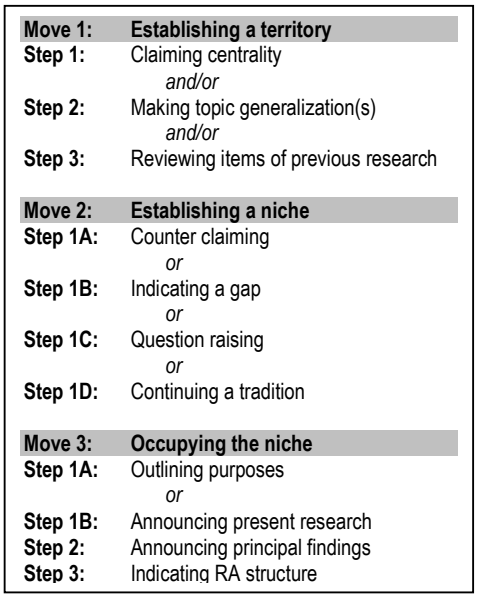
2.3.3 The genre approach to writing

The development of the genre approach to the teaching of academic writing has developed in response to the needs of students to gain access to powerful discourses and also in reaction against the individualistic methodologies of process writing (Paltridge 2004). Systemic functional theory and the concept of genre have been shown to be useful as practical classroom tools in the context of writing at school and in the workplace (e.g. Butt *et al* 2000; Christie 1990; Christie and Martin 1997; Coffin 2002; Derewianka 1990; Macken and Slade 1993; Macken-Horarik 2002, 2003, 2006; Martin 1989, 1993b, 2000b, 2002; Martin and Peters 1985; Rothery 1996; Veel 1997). At the tertiary level, SFL genre curriculum models have been adapted for the teaching of academic writing and some studies of student writing in terms of discourse features and structure have been undertaken, for example, by Drury (1991) on student summaries and in a later paper on short answers (Drury 2001), by Drury and Gollin (1986) and Drury and Webb (1991a, 1991b) on expository texts, by Jones (1991) on grammatical metaphor and technicality, by Ravelli (2004) on hyper-themes in student essays and by Schleppegrell (2002, 2004) on laboratory reports.

Most of the studies of the writing of university students, however, fall in the EAP tradition, on which I draw in the genre analyses in this study and which provides useful material for comparison. In this approach, genres are described in terms of moves and steps, following the seminal work on introductions to research articles (mainly scientific experimental research articles) by Swales (1981, 1990) and his proposal of the Create a Research Space (CARS) model. This model aims to capture the rhetorical functions of the various moves making up the introduction in terms of an ecological metaphor that deals with the following characteristics of research articles:

> the need to re-establish in the eyes of the discourse community the significance of the research field itself; the need to 'situate' the actual research in terms of that significance; and the need to show how this niche in the wider ecosystem will be occupied and defended (Swales 1990: 142).

These functions are clearly evident in the labelling of the moves in the model, reproduced in Figure 2.5 below:



Move 1:	**Establishing a territory**
Step 1:	Claiming centrality
	and/or
Step 2:	Making topic generalization(s)
	and/or
Step 3:	Reviewing items of previous research
Move 2:	**Establishing a niche**
Step 1A:	Counter claiming
	or
Step 1B:	Indicating a gap
	or
Step 1C:	Question raising
	or
Step 1D:	Continuing a tradition
Move 3:	**Occupying the niche**
Step 1A:	Outlining purposes
	or
Step 1B:	Announcing present research
Step 2:	Announcing principal findings
Step 3:	Indicating RA structure

Figure 2.5 Moves and steps in the CARS model for research article introductions (Swales 1990: 141)

The terms 'move' and 'step' as used by Swales are explained by Dudley–Evans and St John (1998: 98) as follows:

> A 'move' is a unit that relates both to the writer's purpose and to the content that s/he wishes to communicate. A 'step' is a lower level text unit than the move that provides a detailed perspective on the options open to the writer in setting out the moves in the introduction.

The moves together fulfil the communicative purpose of the genre. Thus, Move 1 in the model above comprises three possible steps. In one of Swales's examples these steps are identified as follows:

Table 2.2: Example of steps in Move 1 of the introduction section of a research article (from Swales 1990: 143)

MOVE 1	
S1	The increasing interest in…has heightened the need for…
S2	…are some of the main flow features that must be modelled…to properly treat this problem.
S3	Among the many potential flow methods developed… are…

Nwogu (1997), drawing on Swales's work on research article introductions and extending it to the entire medical research article, defines a move as a segment of text comprising a set of linguistic features that give a uniformity of orientation and express the type of information contained within it. These features include lexical and propositional meanings which may be inferred from the context or explicitly signalled by means of lexical clues, such as preparatory expressions (e.g. *the major aim of this trial*), expressions referring to move content (e.g. *methods*) or signals of discourse relations (e.g. *Firstly…Secondly…Thirdly*…).

A pedagogically motivated approach to discourse analysis tends to include linguistic elements because the aim is "to make learners aware of the relationship between the communicative purpose of a genre, the context, and language chosen to achieve the purpose" (Henry and Roseberry 2001b). Lexicogrammatical patterns relate to the moves and steps and these linguistic structures are also seen as part of such analysis (e.g. Henry and Roseberry 1997; Swales 1990). Henry and Roseberry (1996), in their account of the genre structure of travel brochures, describe the characteristic lexicogrammatical features of each move. While there is clearly not a one-to-one correspondence between move and linguistic forms (see Bruce 2008a), such studies do indicate that lexicogrammatical features are often typically associated with or support a particular move. Connor and Mauranen (1999) also found that linguistic clues indicated boundaries in their analysis of grant proposals, particularly when more than one change occurred. Headings and subheadings occurring in the text may also indicate move boundaries. However, Paltridge (1994) finds that the ordering of both semantic attributes and lexicogrammatical patterns is equally flexible in the texts he examines and concludes that it is not "the existence of particular textual patternings alone which leads to the assignment of a text as an instance of a particular genre, but rather the co-occurrence and interaction of each of these particular patternings with other components of interactional and cognitive frames" (Paltridge 1997).

Swales (2004: 228-9) defines a move as "a discoursal or rhetorical unit that performs a coherent communicative function…. It is a functional not a formal unit.'' The rhetorical move contributes to the realisation of the communicative purposes associated with the genre. Moves reflect the structuring of the genre in terms of the typical organizational patterns that occur because they represent "accumulated and conventionalized social knowledge available to a particular discourse or professional community" (Bhatia 1993: 21). According to Bhatia, moves are discriminative elements of genre structure and, just as the genre has a communicative purpose, so each move has a communicative purpose that it contributes within the overall purpose of the genre. Although grammatical features and lexical items may signal or realise moves in a text, they should not be used on their own to

identify communicative purpose since it is functional values that determine genre structure. Duszak (1994: 299) suggests that, in relation to genre analysis, it is "the *scope* of the writer's engagement that is relevant, and not so much the actual manner of its execution". Bhatia (2001) concurs, explaining that the focus should be on the communicative values associated with linguistic forms even though it is these forms that signal and realise such values. Identifying genre moves in this way prevents a tendency to multiply the number of moves unnecessarily. An attempt has been made by Lewin *et al* (2001) to provide a means of coding of semantic features in terms of participants and claims. They use moves as units of analysis which are made up of an obligatory (head) act and slots for optional acts. A discussion of moves and steps and the kind of lexicogrammatical analyses that have been undertaken in this study will be provided in 3.3.1.

My exploration of the research literature has revealed that the investigations of written academic texts making use of analysis of schematic structure (move analysis) deal with introductions (Crookes 1986; Lewin *et al* 2001; Paul and Charney 1995; Samraj 2002a, 2005, 2008) and with other sections of research articles, such as literature reviews (Kwan 2006); discussions (Dudley-Evans 1986; Dubois 1997; Holmes 1997; Hopkins and Dudley-Evans 1988; Lewin *et al* 2001; Peng 1987; Yang and Allison 2003), methods sections (Bloor 1999; Bruce 2008b; Lim 2006: Wood 1982), results sections (Brett 1994; Williams 1999) and abstracts (Hyland 2004a, Ventola 1994). Comparative work has also been done on research articles across various disciplines (Al-Ali and Holme 1999; Bloor 1999) and across related genres (Samraj 2005). Motta-Roth (1996) describes academic book reviews across disciplines. Other studies that have extended Swales's approach to research article introductions to cover the entire genre include Nwogu (1997) for medicine, Posteguillo (1999) for computer science and Kanoksilapatham (2005) for biochemistry. These last descriptions attempt to make explicit the way in which each move is characterised in terms of communicative function and linguistic patterns and how boundaries of moves may be determined.

Although schematic structures in postgraduate theses have been investigated by several researchers (Bunton 2002, 2005; Dudley-Evans 1993; Thompson, P. 2001) and Hyland and Tse (2004a) have described dissertation acknowledgements across disciplines, most genre analysis of academic discourse as mentioned above concerns itself with the writing of professional researchers and in particular with the genre of the research article. The current study breaks new ground by describing the schematic structure of the medical case report and undertaking a comparison between this and the case report assignments of undergraduate students.

2.4 DISCOURSE IN MEDICINE

The various linguistic approaches outlined above and other theoretical frameworks have been used to underpin diverse studies of academic discourse in medicine. A review of this literature is important because the texts that are the subject of analysis in this study originate in the medical specialty of radiology. This section therefore will survey not only work in linguistics but also in the sociology of medicine, since this forms an important source of knowledge of the social context of medical writing in the current study.

Hydén (1997a) and Candlin and Candlin (2003), reviewing literature in the sociology of healthcare, indicate illness as narrative (i.e. the patient's story), narrative about illness (i.e. professional talk about the patient's illness) or narrative as illness (where the illness is indicated by the inability of the patient to produce a narration of events) as the predominant themes. It is not only in medical sociology and anthropology but also in the field of discourse analysis of medical communication that, in the sources I have consulted, narrative research predominates, with a major focus on patient-practitioner interaction (e.g. Ainsworth-Vaughn 1998, 2001; Barton 2004; Cicourel 1983; Davis 1988; Elwyn and Gwyn 1998; Fairclough 1992b; Fisher 1982; Frankel 1983; Maclean 1989; Mishler 1984, 1997; Prince *et al* 1982; Ravotas and Berkenkotter 1998; Silverman 1987; Silverman and Bloor 1997; ten Have 1991; Thomas and Wilson 1996; West 1984; Wodak 1996, 1997). Medical practitioners are also interested in narrative and the role it can play in understanding the experience of illness and in healing (e.g. Greenhalgh and Hurwitz 1998).

There has, at the same time, also been some interest in practitioner-practitioner interaction in the form of case narratives and also in the role of the case in medical research and education (e.g. Anspach 1988; Charon 1992; Donnelly 1997; Erickson 1999; Good 1993; Van Naerssen 1985; Weed 1969). Hunter (1991, 1996) holds that the knowledge of medicine and clinical judgement are fundamentally narrative and that the case is therefore the basic unit of medical discourse. She traces the course of the case from the story told by the presenting patient, via a clinical examination and relevant tests, to its reinterpretation as a medical account in the light of scientific knowledge, showing that the focus of this narrative is the successful diagnosis of the malady and a plan for care. The case is ubiquitous in a hospital setting: cases are presented orally as part of the medical narrative between medical staff; cases are also written up on charts, in letters and, in relatively few instances, for

publication. The case is thus a basic unit of both medical practice and clinical knowledge (Atkinson 1977; Brody 1987; Cali and Estrada 1999; Cox 2001; Sinclair 2000).

The case report was central in the medical literature in the nineteenth century in Europe (Taavitsainen and Pahta 2000) but has subsequently been displaced by other genres of medical writing, particularly the research article (Atkinson, D. 1992). Atkinson traces the evolution of articles in a medical journal over two and a half centuries and indicates how the focus in research writing has changed from reports on "single cases of disease…to the treatment of, or collection of information about a general disease type, supported by statistics derived from large numbers of cases" (Atkinson, D. 1992: 346), finally showing a predominance of experiment-based research articles characterised by the standard format of introduction, method, results and discussion (IMRD). Because of the volume of medical literature, synoptic papers have also become important to assist clinicians in finding information (Huth 1990). These papers include reviews and editorials. However, it is the research article that appears most frequently in medical journals.

Research articles, according to Hunter (1991), advance medical knowledge on two fronts, firstly in biomedical science, as concerned with the mechanism of disease, and secondly in clinical epidemiology, which has to do with prevalence of disease and effectiveness of treatment. A third means of creating knowledge in medicine is, as Hunter points out, narrative, and the case report continues to be published in medical journals in all specialties, sometimes itself even being the subject of articles encouraging the publication of such clinical accounts (e.g. Childs 2004; Donnelly 1997; Sekerak 2003). Hunter (1991: 82) ascribes the continued existence of the case report to the fact that "[i]t is of a piece with the nature of medicine, which requires the physician to recognize and treat in a particular patient the signs of a generalized disease abstraction''. Thus, despite its narrative nature, the case report is actually very much a scientific genre. Hunter notes that this is borne out by the type of title generally given a report, which "identifies the phenomenon to be described, specifies its noteworthiness, and renders it indexable" (Hunter 1991: 95). For example, in the corpus of professional case reports which form the basis of this study the title *Diffuse cerebral artefact: A further unusual cause* identifies the topic of the report in technical terms and emphasises its rarity.

Over time, the reliance on case reports in the medical literature as a major part of the production of knowledge has diminished. While the case study is restricted to reporting on a single case, it makes at the same time an implicit claim to generalisability by virtue of its

function in transforming the story of a patient's experience of illness into a narrative concerning an example of a problem with a biological function (Donnelly 1997). This sort of generalisation is considered to be limited in its scientific usefulness because of inherent clinician's bias (Childs 2004) and case reports published in journals are now restricted to dealing only with the new or unexpected (Hunter 1991; Huth 1990; Taavitsainen and Pahta 2000). Macnaughton (1998) refers to them as anecdotes which can function as lateral thinking to stimulate further research in medicine. Despite this view of the secondary role of the case report in published medical research, Hunter (1991: 94) holds that in the professional case report "the construction of the narrative that is fundamental to medical research and education takes its most compact, refined, and reworked form."

Hunter's work is drawn on by Atkinson (1995) in his understanding of the centrality of the case presentation in the clinical environment. Using Kleinman's (1988) distinction between illness and disease, he notes the one-sided emphasis in the literature on illness stories that limit their attention to doctor-patient interactions. Atkinson's own work goes beyond the dyadic consultation to open up other areas of inquiry such as the acquisition of medical discourse (Atkinson 1988) and interactions between practitioners (Atkinson 1995, 2004). He concentrates on the oral narrative culture, the "liturgical" use of narrative in frequent tellings and retellings of cases in hospital settings. A different approach is taken by Hydén (1997b), who discusses written medical reports by social workers and psychiatrists. He describes the report as a "literary artefact" that cannot simply be identified with the social interaction it entails but needs to be seen in terms of genre, events, characters and literary devices (Hydén 1997b: 247). Similarly, Davis (1988), while suggesting that a narrative such as a report is a factual account of reality, nevertheless agrees that it is edited to make it useful for other purposes, for example, a medical history documented so as to facilitate a diagnosis. She distinguishes narratives understood in this way from stories which present something unusual or "story worthy" and which focus on experience in such a way as to draw the audience in to share the feelings of the protagonist; they are, in other words, evaluative and subjective. This sort of distinction is useful in comparing the ways in which narrative is used in the student and professional corpora in my study.

The distinction outlined above has not necessarily been taken into account in studies of the discourse features of medical cases. Anspach (1988), for instance, examines the way claims to knowledge are made in medical case histories and notes the use of depersonalisation, omission of personal agents and the treatment of medical technology as

agents. She sees these features as means of objectifying processes and of casting instruments rather than people as the creators of data (see also Cali and Estrada 1999). Francis and Kramer-Dahl (1991) draw on a SFL approach in their comparison of a case report with the "clinical tale" by Sacks (1985) entitled *The man who mistook his wife for a hat*. Sacks wrote this essay within the framework of humanistic medicine, questioning the ideology of medical case histories, which are not concerned with the experience of the patient but rather with rigour in observation and discovery. These characteristics are ascribed by Segal (1993b) to the "paternalism" of medical discourse. Hunter (1991: 123), however, suggests that not only are conventional medical case histories and this sort of extended case study fundamentally different but also "this difference is essential to the work of medical care" and should be recognised to avoid misunderstanding. She analyses the use of pronouns, impersonal constructions and narrative conventions in case reports showing how they represent responsibility and a commitment to rationality. Atkinson (1994, 1995, 1999) takes this analysis further, showing in greater detail how the use of agency and evidentiality delineate responsibility, authority and credibility in the narration of the case. The meanings in texts are learned by medical students and junior doctors as they acquire the use of the discourse patterns of case presentations and records through clinical exchanges (Atkinson 1999; Hobbs 2003; Hunter 1991; Lingard and Haber 2002; Schryer *et al* 2003).

The literature considered above is from the fields of medical education and the sociology of medicine. Working in the field of linguistics, MacDonald (2002) examines the key institutional medical genres and the relationship between them in terms of recontextualisation of meanings from one genre to another. He does not deal with the narration of case but focuses rather on the research article as the quintessential means by which medical knowledge is created. The research article is also the subject of work by Adams Smith (1987), who compares it in terms of structure to science popularisations. Skelton (1994) and Nwogu (1997) both follow Swales's (1990) approach to genre analysis in accounting for the schematic structure of medical research articles. An account of the results sections of medical articles is also provided by Williams (1999). Work done on various other aspects of medical writing too is almost completely confined to research papers. This work covers a range of different topics such as the different linguistic patterns in various sections of research articles (Biber and Finegan 1994) and the genre structure of abstracts (Anderson and Maclean 1997; Melander *et al* 1997). Other work focuses on particular linguistic features such as thematic structure (Bruce 1984; Dubois 1987; Gosden 1992, 1993; Nwogu and Bloor 1991) and modality and hedging (Adams Smith 1984;

Malcolm 1987; Salager-Meyer 1992, 1994, 1999a; Salager-Meyer *et al* 1989, 1996; Varttala 1999; Vihla 1999, 2000). There has been some attention paid to referencing (Dubois 1988; Salager-Meyer 1997, 1999b; Thomas and Hawes 1994; Williams 1996). Corpus based work on medical writing has also dealt with collocations (Gledhill 1995, 2000; Marco 2000; Méndez-Cendón and López-Arroyo 2003; Oakey 2002).

In his study of research papers from medical journals, Skelton (1997: 131) points out that "alongside the randomized controlled trials which are the stock–in-trade of medical research and the major journals, there is [the narrative tradition]…asserting [its] own importance, [its] own claim to mean", namely the medical case report. However, as is obvious from the survey just given, the case report in medicine has not received much attention from linguists and what work has been done does not extend to a description of the genre structure. Thus, Salager-Meyer (1994) and Salager-Meyer *et al* (1996) compare the use of hedges over time and across the various sections of different medical genres including the case report (Salager-Meyer 1999a, 1999b). Francis and Kramer-Dahl (1991), as mentioned above, compare the lexicogrammatical patterns of a conventional medical case history with a storytelling approach to a patient with the same condition. Taavitsainen and Pahta (2000), in their review of the development of the case report from the nineteenth century to the twentieth century, focus on the point of view of the author. The current study is an attempt not only to explore the extent to which students have learned to take on a medical persona in their writing but also to provide the first descriptive account of the radiological case report. These reports differ from other subcategories of medical case reports in terms of content, being concerned particularly with radiographic techniques for diagnosis. However, they appear generally to share a rhetorical purpose and structure with all medical case reports and may be considered a subset within this category.

2.5 SUMMARY AND CONCLUSION

In the discussion in this chapter I have suggested how an investigation of identity and purpose in novice and expert medical texts may be located in relation to contributions to research into academic writing. Several different frameworks and overlapping approaches can be identified in the field but the most relevant for a study of writer identity is a socially based approach to text. Accordingly, the research literature relevant to the theoretical bases for describing written discourse in the disciplines has been discussed, focusing on systemic functional analysis, which, providing as it does a powerful way of conceptualising

the relationships between form, function and context, forms the basis of the model for analysis of text in this study.

Based on a survey of various genre theories, I have argued that the ESP approach to genre, a development within SFL, provides a useful framework for investigating the relationship between form and context in medical case reports, allowing also for comparison with existing analyses of other academic genres. An approach to an ethnography of writing by Grabe and Kaplan (1996) suggests that, at another level of analysis, the concept of metadiscourse can provide a further important way of describing purpose and identity in texts. While metadiscourse has always been a rather vague and fuzzy concept, it has recently been defined more explicitly and a new set of categories for analysis has been proposed by Hyland (2005). This new model was reviewed in this chapter and will be used to provide insight into the identities of the expert and novice writers in my study.

Moving from this general theoretical background and building on it, I have surveyed the literature relevant to writing in the disciplines, including key concepts such as the discourse community and its relevance to apprenticeship, in order to understand how students might be positioned in relation to their field and to the practices of expert writers. These notions will be significant in providing explanations for the data found in the two corpora, as reported on in Chapter 4. Some additional insights from the research literature into the ways in which identity might be constructed and explored were briefly covered in this chapter and the concept of persona and a critical discourse approach to writer identity described. Finally, since my study focuses on case reports in the field of medicine and since I am an outsider to the discipline into the social context in which the corpora were produced, I have surveyed the literature on medical writing as a way of gaining understanding of this context. It appears that, while most of the studies confine themselves to patient-practitioner interaction, there is some interest in practitioner-practitioner discourse that has the case as its focus, although little of this work has been primarily linguistic in orientation.

CHAPTER 3

RESEARCH FRAMEWORK AND METHODOLOGY

3.0 INTRODUCTION

In this chapter, a theoretical framework is developed for visualising the context surrounding text and how this relates to the relationship of communicative purpose between the writer and reader. The way in which writer identity is manifest in discourse is operationalised as purpose, expressed both at the macro-level of genre and at the micro-level of metadiscourse. These forms of analysis are described and a model is proposed to show how the various constructs and levels within the framework are related (3.1). The process of data collection in the study is described (3.2) and the methodology followed in the various analyses is discussed and illustrated (3.3).

The specific research questions and sub-questions dealt with in the study are listed in Chapter 1. These questions guide the analysis of the texts in this exploratory study. They are reproduced here for convenience and to provide a reference point and rationale for the key concepts involved in the framework:

1. To what extent are students writing in the workplace and in the context of the field of radiology able to position themselves as professionals?
    - To what extent do the genre structures used in student case reports resemble those of experts in the field?
    - To what extent do the important text types used in the student case reports resemble those of the experts?
    - To what extent do the metadiscourse patterns used in the student case reports resemble those of the experts?
    - What are the reasons for the choices found in these various patterns in the student texts?
    - What influence do the context of situation and ideology have on the way in which the students are positioned through the use of these genre, lexicogrammatical and other patterns?
    - How do the students' understandings of their role as writers relate to the patterns

evident in the texts they write?

2. What writer identity is displayed in texts by professional writers in the context of the field of radiology?
   - What identity is indicated by means of the genre structure and associated lexicogrammatical patterns of the case report?
   - What identity is indicated by means of important text type structures in the case report?
   - What identity is indicated by means of patterns of metadiscourse use in the case report?

These questions arose from the setting of case reports as an assignment for second year radiography students at the Port Elizabeth Technikon (now the Nelson Mandela Metropolitan University). The assignments were researched and written by the students while they were gaining practical experience in various hospitals. The writing of case reports is associated with the professional role of practitioners and technologists in the field of radiography (as in other medical fields) and in writing this assignment the students needed to take on the professional identity expected of them. The focus of this study is on the professional identity of the writer as revealed in case reports produced within a specialty of medical practice and in the following section I describe the framework in which this will be examined.

3.1 METHODOLOGICAL FRAMEWORK

The approach taken to genre and identity in this study views them as located in a social paradigm, as described in the previous chapter (2.2). Although discourse includes both written and spoken texts, in the following discussion of the methodological aspects of the theories that are drawn on in my analysis, I will refer only to writers and readers since the analysis undertaken in this study is confined to written text.

A social view of writing links the notion of identity with that of purpose and context. This paradigm views the act of producing any academic or professional text as being located within a social context and within established discursive practices, which have implications for relationships between writer and reader in a particular discourse community. Both writer and reader as members of the community are rhetorically constituted and community goals are accomplished through particular genres associated with the community. The medical researchers and practitioners who publish texts in a specialist medical journal, for example,

belong to a discourse community that has certain values in common and write in such a way as to be recognised as members by others within the community. The communicative purpose of their articles is to add to theoretical or clinical knowledge within that community, in other words, to have their findings or their contribution to clinical experience recognised, and this requires that they write within particular genres.

This view of community role and genre provides a macro-level means of exploring the notion of identity in the two corpora of medical case reports examined in this study. At a more micro-level, metadiscourse expressions also provide insight into writer identity (see 2.2.3). This is because discourse practices involve relationships between writers and readers, which are signalled as writers project themselves into texts to explicitly relate to and to guide their readers.

In order to link the patterns of language in the texts with their social purpose and with genre structure, the current study draws on the theory of meaning and context offered by SFL. This theory is outlined in this section, where firstly levels of context that simultaneously realise text and are realised in it (3.1.1) and then the analytical constructs associated with each level are discussed (3.1.2). The rationale for a focus on genre in the study is also provided (3.1.3). Metadiscourse, as a second and complementary analytical approach, is then discussed (3.1.4) and a model introduced to show how the various constructs and levels within the framework are related (3.1.5).

3.1.1 Levels of context in Systemic Functional Linguistics

The study draws on Halliday's theoretical model of SFL, particularly as described in Halliday and Hasan (1989), Halliday and Matthiessen (2004) and Martin (1992), because this is a model that explains the links between meaning, form and context. In this approach, as described in the previous chapter (2.2.1), three levels of context for language are distinguished (i.e. context of situation, context of culture and ideology). These levels of context will be briefly explained in turn in this section and an indication given of how each is realised in text. This fundamental framework is important as a means of understanding how various types of analysis of language used in the current study link with context at various levels, including that of context of culture. This level of context is instantiated in the text as genre structure, and genre analysis is an important approach in the study. A more detailed account of the particular constructs of analysis used will be provided in 3.1.2.

The first level of context distinguished in the systemic functional approach is the context of situation, "the things going on in the world outside the text which make the text what it is" (Butt *et al* 2000:14). As explained in the previous chapter, the context of situation has three dimensions, namely field, tenor and mode. These three aspects of the context reflect the three main functions of language, termed metafunctions by Halliday because they are intrinsic to language and reflect its major purposes (Halliday and Matthiessen 2004). These purposes are firstly to talk about human experience (the ideational metafunction), secondly to interact with others through discourse (the interpersonal metafunction) and thirdly to organise discourse as it combines the previous functions into a coherent, linear flow (the textual metafunction).

The second level of context distinguished in the systemic functional approach is the context of culture. Linked with the context of culture is genre, the most overt indication of purpose in a text (Eggins 2004; Martin 1992) and the most important linguistic resource for constructing social relations (Lemke 1992). Genres are defined by Kress and Threadgold (1988: 216) as the "socially ratified text-types in a community". Since genre is one of the important means of expressing purpose and therefore identity in text, the investigation of genre structure forms a key aspect of analysis in this study. According to Martin and Rose (2003), genres come about because the recurrence of situations leads to habitual ways of interacting with these situations. The genre of the case report, for instance, is the accepted way in the field of medicine of providing a written account of a single medical case which is retold in order to transform the story of a patient's experience of illness into a narrative concerning an example of a biological problem, embedded in an overview of the current medical knowledge regarding this problem. Other examples of genres associated with the medical community include the research article and the consultation.

In addition to the contexts of situation and culture, there is a third level of context represented in the text and this is ideology (Martin 1992). As discussed in 2.2.2.6, the notion of ideology as a level of context accounts for the encoding in language of particular values and positions, with ideology being expressed by the other levels of context and language. Differences between choices made by professional and student writers at different levels in the corpora examined in this study can be accounted for as realising ideological differences. Thus the professional writers appear to view diagnosis and management of disease as being the focus of their writing, whereas for the students it is the illness narratives of patients that are focal. This impacts, for instance, on the way the genre unfolds and also on the way transitivity patterns occur in the case presentation section of the

case report in each corpus. The student writers, for example, include a social history of the patient in the case presentation section, while the professional reports do not (see 4.4.2.6). With regard to register, again taking an example from this particular section of the case report, the professional texts choose transitivity patterns in which the patient, generally Carrier or Actor without Goal, tends to be shown as having less agency than in the student texts where the patient can also be Senser or Sayer (see 4.3.3.3 and 4.4.2.6).

Having outlined above the levels of context that realise text and are realised in it, I go on in the next section to describe the categories of analysis linked with these levels. The use of these analyses provides a methodology for describing discourse patterns in the corpus of medical case reports and linking them with identity, even though the relationship between genre and linguistic patterns should not be regarded as determined (see 2.2.2.2). The fact that this relationship is seen as probabilistic has implications for the use of register analysis in this study since it follows that it is not necessarily useful to provide a full analysis of each dimension of register. In practice I make selective use of this type of analysis in Chapter 4, primarily in order to arrive at and to support the genre analysis.

3.1.2 Analytical constructs in Systemic Functional Linguistics

The levels of context described above are each linked in SFL with a particular analytical construct. These constructs are described in this section, namely register (3.1.2.1), genre (3.1.2.2) and ideology (3.1.2.3). While genre analysis is the appropriate means of describing texts in this study, since purpose comprises the most important dimension of interest, each of the constructs listed above is relevant to some extent to the description of the corpora and will be discussed in terms of its place in the analysis of data to be undertaken in Chapter 4. The examples provided are derived from the professional corpus of radiology case reports.

3.1.2.1 Register

Texts sharing the same context of situation share a register. The construct of register, which instantiates the context of situation, is organised in terms of field, tenor and mode. Each register dimension is realised at the level of language as a corresponding metafunction, namely the experiential, interpersonal and textual metafunctions, as already described (3.1.1). Particular patterns of language, or network systems, are generally related to each dimension (Eggins 2004; Halliday and Matthiessen 2004) and so register theory

implies that analysing the situation in terms of field, tenor and mode will reflect how language will be used in that situation and also that any text contains indications of its context (Halliday 1989a).

The clause (the main analytical unit in SFL) reflects the three metafunctional dimensions of meaning simultaneously (Halliday and Matthiessen 2004), as indicated in the three strands of analysis of the example in Table 3.1, each of which will be briefly explained below:

Table 3.1 The three metafunctional lines of meaning in a clause (*HTGL*)

Metafunction	*Hydatid disease*	*is caused by*	*the parasitic tapeworm, Echinococcus granulosus*
Experiential	Value	Process	Token
Interpersonal	Mood	Residue	
Textual	Theme	Rheme	

In terms of the *experiential metafunction* the clause construes a "configuration of a process, participants involved in it and any attendant circumstances" (Halliday and Matthiessen 2004: 169) and accounts for both the events of the external world as well as the internal world of mental experience (Thompson 2004). The main processes available are material (happening and doing), mental (thinking and sensing), verbal (saying), existential (existing) and relational (assigning attributes or identities). Each type of process has participants that characteristically are associated with it. Circumstances associated with processes are generally realised by adverbials or prepositional groups. Some of these elements are exemplified in the analysis of clauses below from the introduction to *DCAR* (for the full title of this professional case report, see Appendix 1):

(1)
1. Variants of normality and artefacts on medical diagnostic images [Token] may sometimes be mistaken for [Process: relational] disease [Value].
2. [[Learning to recognise these diagnostic pitfalls]] [Carrier] is [Process: relational] an important aspect of the interpretation of medical diagnostic images [Attribute].
3. The majority of such variants and artefacts [Phenomenon] are seen [Process: mental] as localised or focal changes on the radiograph [Circumstance: role]
4. and have been extensively [Circumstance: manner] documented [Process: verbal] in a classic text [Circumstance: location].
5. In the case of CT imaging of the brain [Circumstance: matter], the common catches and artefacts <<(all [Carrier] focal [Attribute])>> [Scope] have also been published [Process: material] in textbook form [Circumstance: role].

The grammatical system which is used to analyse the experiential metafunction is known as transitivity (Halliday and Matthiessen 2004). A transitivity analysis is useful as an indication of agency in the corpora explored in this study. It also can provide evidence of boundaries in structural moves. Thus, for example, the genre move that functions to report the investigation of the patient's symptoms is characterised by the use of mental and relational

processes and is thus distinguished from the move reporting the response of the medical team to the diagnosed condition (i.e. treatment and management) in which material processes predominate.

The second of the three components of meaning listed above is the *interpersonal metafunction*. This metafunction encodes interaction such as giving or demanding information. It does this by means of the Mood element of the clause which consists of the Subject, namely, the entity about which a proposition is expressed, and the Finite, namely, the part of the clause that "makes it possible to argue about the validity of the proposition" (Thompson 2004: 53). Thompson explains that three claims are being made about a proposition by means of the Finite, each of which is able to be accepted or rejected by the reader. These are, firstly, the validity of the proposition with respect to time (tense), secondly, whether the proposition is positive or negative (polarity) and, thirdly, to what extent it is valid (modality). For example, in the clause in Table 3.2 below, the writers introduce the entity about which they are going to make a claim (Subject); they then indicate that this is a general claim linked with a past time and that the validity is absolute and positive (Finite); finally they make the claim (Residue):

Table 3.2 Example of mood structure in a clause (*TICA*)

Mood		**Residue**
Subject	*Finite*	
A markedly tortuous internal carotid artery	was	demonstrated in the prevertebral soft tissues on this side.

Because communication as exchange involves speech roles (offering or demanding) and commodities (goods and services or information), combinations of these options allows for four basic mood types: the writer can offer goods and services (offer) or information (statement): the writer can demand goods and services (command) or information (question). Clauses are classified in terms of these different mood types. In addition, propositions can take up the "modal space" (Thomson 2004: 67) between the extremes of positive and negative. Four different types of modality are distinguished in SFG and are illustrated in constructed examples, (2) to (5) below:

(2) Hydatid disease **may** be caused by a tapeworm (probability).

(3) Hydatid disease is **usually** caused by a tapeworm (usuality).

(4) Thyroid nodules **should** be evaluated by means of ultrasound (obligation).

(5) The centre **will** evaluate all thyroid nodules by means of ultrasound (inclination).

Probability and usuality open up the modal space within statements and questions and belong to the system of modalisation, while obligation and inclination open up the modal space within commands and offers and are referred to as modulation (Halliday and Matthiessen 2004; Martin 1995).

Modality is mostly signalled by means of an adjunct such as in (3) above or within the verb as in the other examples but it can also be expressed in a separate clause or by means of a nominalisation or an adjective, for example:

(6) **It is likely** that the patient has hydatid disease.

(7) **The likelihood** of her having hydatid disease is slight.

(8) The **possible** diagnosis is mentioned in the notes.

The concept of modality has been defined in other approaches as the expression of the writer's attitudes and opinions (e.g. Markkanen and Schröder 1997; Palmer 1986). Classifications of modal expressions in formal semantics refer to epistemic and root (or non-epistemic, i.e. deontic and dynamic) modality (e.g. Coates 1983; Hyland 1998c; Vihla 2000; Vold 2006). Coates (1995: 55) distinguishes between these types of modality as follows:

> Epistemic modality is concerned with the speaker's assumptions or assessment of possibilities, and in most cases it indicates the speaker's confidence or lack of confidence in the truth of the proposition expressed. Root modality encompasses meaning such as permission and obligation, and also possibility and necessity.

An example of root modality is provided in (9) below where *may* has the meaning *it is possible <u>for</u>* while in (10) the epistemic modal has the meaning of *it is possible <u>that</u>*:

(9) There **may** occasionally be diffuse involvement of the calvarium or a single lytic lesion with surrounding sclerosis (*PCTU*).

(10) This pathology **may** be defined as midline arteriovenous fistulae with aneurysmal dilations of the median venous sac (*AVGA*).

Because epistemic modality conveys the writer's confidence or lack of confidence in propositions or states of affairs, the distinction between epistemic and root modality is useful in an analysis of academic writing. In my study, since metadiscourse subsumes modality within a range of related interactional categories, the sort of interpersonal meaning described in terms of modality in the SFL model is dealt with together with other hedges in the metadiscourse analysis (4.6.1.3).

The third component of meaning is the *textual metafunction*, relating to the organisation of the message and how a particular clause fits with the message of the text as it has developed thus far (Thompson 2004). It does not do this as "a kind of presentational post-production unit that is brought into operation once ideational and interpersonal selections have been made" (Matthiessen 1995: 20) but rather it enables the construction of ideational and interpersonal meanings as information through choices made in ordering the elements of the clause. In English, thematic status is signalled by its initial position in the clause and theme is defined as the "point of departure of the message" (Halliday and Matthiessen 2004: 64) or "the angle on the message" (Matthiessen 1995: 27). Fries (1997) explains the function of the theme as setting up an orienting framework in terms of which the clause is interpreted. The remainder of the clause constitutes the rheme; its function is to develop the theme. To exemplify this, thematic analysis is applied, in Table 3.3 below, to the consecutive clauses from one of the professional case report (*PCTU*), where each clause takes its point of departure from a type of medical investigation, a characteristic in the particular genre move this represents:

Table 3.3 Examples of clauses showing thematic structure (*PCTU*)

Theme	Rheme
The ESR	was raised
and the Mantoux	was strongly reactive.
Chest X-ray	was suggestive of bilateral hilar adenopathy.
Full blood count and bone marrow aspirate	were normal.
Biopsy	demonstrated necrotising granulomatous inflammation in keeping with TB.

In declarative clauses the subject is the most frequently occurring theme, as in the examples above. Textual or interpersonal items that are not part of the experiential meaning of the clause (i.e. the topical theme) are exemplified in Table 3.4 below:

Table 3.4 Examples of multiple themes (*SPOL*)

Theme			Rheme
Interpersonal	*Textual*	*Topical*	
Characteristically,		it	passes through the enlarged sinus ostium
	and	[it]	protrudes into the choana

When the topical theme is realised by an element other than the subject in a declarative clause, it is known as a marked theme (Halliday and Matthiessen 2004). In the examples in Table 3.5 below, the subject, which would normally be the theme in a declarative clause, would now be referred to as the "displaced" theme (Halliday and Matthiessen 2004: 103fn)

and is indicated in italics:

Table 3.5 Examples of marked themes in declarative clauses (*SPOL*)

Marked theme	Rheme
In the case of an antrochoanal polyp	*the polyp* can be followed passing between the middle turbinate and the lateral wall of the nasal cavity.
With a sphenochoanal polyp,	*the polyp* is between the nasal septum and middle turbinate.

Eggins (2004: 318) explains that a marked choice of theme is made when "something in the context requires an atypical meaning to be made." This is exemplified in the examples in Table 3.5 above. Just prior to these clauses, the writers have stated the importance of distinguishing the different paths followed by the two different types of polyp. Now, when detailing each path, they are at pains to emphasise and make clear the differences. They do this by using prepositional phrases as marked themes in both clauses.

Thompson (2004), following Daneš (1974) and Fries (1995), lists ways that theme choices work together in texts. The choice of a related theme signals a continuation of the angle on the message and changing the method of development of the text changes the way in which the following clauses should be interpreted. The method of development usually found in the case reports in the corpus studied here is "theme iteration" (Fries 1995: 321), as exemplified in Table 3.6 below (elements shown in square brackets are ellipsed in the text):

Table 3.6 Example of theme iteration as method of development (*IAEA*)

Theme		Rheme
Textual	*Topical*	
	The patient	was assaulted.
	He	sustained multiple scalp lacerations without penetrating head injury.
	He	was also stabbed in the dorsal spine.
and	[he	was] rendered paraplegic (clinically T4 level).

When writers repeat the same sort of element in the theme, they may be signalling the importance of the chosen starting point in the text. A change in the type of theme chosen in successive clauses can signal boundaries in the genre structure (Thompson 2004) and it is because of this sort of role in signalling genre structure that thematic analysis has been selected as one of the analytical tools in this study. Its usefulness may be exemplified in Table 3.7 below, which demonstrates how the formerly established thematic pattern (as shown in Table 3.6 above) is changed by the introduction of a clause which has a type of radiological investigation as theme, namely *CT scan of the brain*. This is the start of a new

move reporting the investigation of the case and characterised by themes that refer to investigations, findings and particular parts of the patient's body. The final clause in this move is distinguished by use of a marked theme (in bold type) making reference to the findings from the investigations (the displaced theme is indicated by use of italics).

Table 3.7 Example of changes in thematic pattern indicating move boundaries (*IAEA*)

Move	Theme	Rheme
4	The patient	was assaulted.
	He	sustained multiple scalp lacerations without penetrating head injury.
	He	was also stabbed in the dorsal spine.
	and [he	was] rendered paraplegic (clinically T4 level).
5	CT scan of the brain	showed several small intracranial air loculi within the basal cisterns… .
	No penetrating injury	was shown
	The right maxillary antrum	was noted to be opaque.
	There	was however no evidence of injury to the paranasal sinuses (namely ethmoid, frontal and sphenoid)
	which [paranasal sinuses]	share a bony wall with the floor of the anterior cranial fossa.
	There	was also no evidence of injury to the mastoids.
	CT scan of the dorsal spine	showed air within the thecal sac at the T3 level.
	An incised fracture	(representing the knife track), through the right T3 lamina is also shown.
	From the clinical and CT findings	*it* is concluded that the intracranial air is due to cephalad migration of intrathecal air introduced at the time of the penetrating injury to the dorsal spinal cord and theca.

The criteria used for identifying theme in a clause in the thematic analysis exemplified in this chapter and in Chapter 4 are those established by Halliday and Matthiessen (2004), who identify theme as starting at the beginning of the clause and going up to and including the first element that has an experiential function.

Having examined the way in which register analysis is used in this study, I now turn to a discussion of the way in which the genre analysis is carried out.

3.1.2.2 Genre

Register, as discussed above, is linked with the context of situation and in this study the analyses of transitivity and theme provide ways of describing register variables. The next construct to be discussed here is genre, which is linked with the level of the context of culture. This level of context accounts for institutionally and rhetorically determined purposes in writing and is associated with both social genre and cognitive genre as suggested by Bruce (2008a) (see 2.2.2.4). While I draw on Bruce's model for an understanding of how social genres and cognitive genres are related, I will nevertheless use

the term ‘genre’ in place of ‘social genre’ and likewise refer to Bruce’s ‘cognitive genre’ as ‘text type’. In the current study the medical case report is investigated. This genre is characterised by an overall social purpose recognised in the medical discourse community. The case report frames text types that are structured in terms of the Problem-Solution pattern in the case presentation section and the General-Particular pattern in the discussion section and therefore some attention has been given in the study, as part of the focus on genre structures, to these particular text types. The Problem-Solution pattern in particular shows some interesting variations in the particular context explored here. Nevertheless, while a comparison of these patterns across the corpora provides insight into the differences between expert and novice writers in this study, the focus in the analysis is on genre rather than on text types.

In the previous chapter, the theoretical approach to genre taken by systemic functionalists and also the approach developed within ESP was described (2.2.2). There is common ground between the two since both see genre as staged and goal oriented. However, much of the earlier genre work by systemicists has been application within the school context and the non-professional workplace (see 2.2.2.2) while Swales and the linguists following him have tended to work with academic and professional texts and writers (see 2.2.2.3). It was also noted that the pedagogical genres described in the first approach, such as narrative and explanation, are actually better categorised as text types and that they sometimes occur in complexes known as macro-genres. By contrast, the ESP approach involves analysing text in terms of structural moves with the specific aim of assisting novice writers in acquiring the appropriate specialised genres in their field (Hyland 2002f). Because the case report is a specialised medical genre, the latter approach provides a useful framework for description in this study. Methodological details of the genre analysis of the texts will be dealt with in 3.3.1.

The texts comprise two corpora. The first is a corpus of professional radiology case reports, which is analysed so that the prototypical structure of this genre can be established. This is necessary because, while the medical research article has been the focus of much attention (see 2.4), there appear to be no genre based studies of medical case reports in the research literature. The second corpus is of student texts from the same field. The analysis of this corpus and its comparison with the professional texts is intended to provide a means of exploring to what extent the student writers have been successful in positioning themselves as professionals and taking on an appropriate identity as expressed in text structure. The comparison also allows for the analysis of each corpus to inform that of the other. Because

genre is defined in terms of communicative purpose and social action (Swales 1990), each corpus is viewed as representing a different but related genre. The rationale for this is discussed in Chapter 4.

3.1.2.3 Ideology

The findings of the various analyses described above can be integrated at the level of ideology since ideological meanings are realised at each of the other levels of context, as discussed in 2.2.2.6. Thus the ideological position expressed in a medical case report is realised at the level of genre (for instance, the case report as a genre expresses a particular approach towards the medical community and to medical knowledge) and simultaneously at the level of register (for instance, the tenor is practitioner-to-practitioner, indicating that the extension of clinical knowledge is viewed as being restricted to experts). Ideological positions are compared between the two corpora as a way of explaining findings from the various analyses mentioned above. In order to do this I draw on literature in the sociology of medicine which accounts for some of the "discourses and stories" (Threadgold 1989) involved in the texts.

3.1.3 Genre as a focus of analysis

Halliday (1985: 54) has indicated the necessity of selective analysis in the investigation of any texts, suggesting that "the guiding principle is to select and develop whatever is needed for the particular purpose in hand." This sort of selective focus is made use of in the current study, in which the analyses at the various levels described above centre on genre as one way of representing the identity of the writer within the discourse community (see 2.1). Therefore, while lexicogrammatical aspects of the texts are drawn on in Chapter 4 and a detailed lexicogrammatical analysis made of one text from each corpus for the purpose of comparison (4.5), the use of this sort of data is generally to assist with the analysis of the genre structure, providing support for a wider rhetorical analysis. The lexicogrammatical patterns that appear in texts, realising the context of situation, often suggest boundaries of functional genre stages or moves (Swales 1990, 2004). The various analyses relevant to the metafunctions have been discussed in 3.1.2.1 and it was noted that transitivity and thematic analysis will be made use of in arriving at a description of the genre structure of the case reports. Similarly, while ideology is not a focus of the analysis, some of the conclusions drawn from a comparison of the corpora regarding identity are ideological interpretations. Genre analysis in this study constitutes a major approach and is used to

describe purpose and identity at a macro-level, where the overt purpose "influences the text structure itself, selecting appropriate genre options" (Grabe and Kaplan 1996: 210).

While genre then is the most overt means of revealing purpose, there are functional features operating at a micro-level in text that also convey purpose, as referred to in the previous chapter (2.1). One important feature operating as this level is metadiscourse, which can assist an understanding of how writers express disciplinary values and purposes. Metadiscourse as a means of investigating writer purposes and identity is discussed in the next section.

3.1.4 Metadiscourse analysis

The term metadiscourse as it appears in the research literature was discussed in 2.2.3. Metadiscourse constitutes an important means of examining writer purpose and identity. As Hyland (2005: 4) points out, because communication is a social activity it is never neutral. He continues:

> Those that *articulate* meaning must therefore consider its social impact, the effect it has on those who *interpret* the meaning, the readers or hearers who at that moment constitute an *audience* for the communication. Metadiscourse is one of the main means by which this is accomplished, involving writers/speakers and their audiences in mutual acts of comprehension and involvement.

A second and complementary dimension of the current study therefore is a micro-level analysis of metadiscourse in the texts making up the two corpora.

As discussed in the previous chapter (2.2.3), metadiscourse differs from Halliday's interpersonal metafunction in SFL, which is realised in terms of the systems of mood and modality (Hyland 2005). Systemic functional theory does provide a further level of interpersonal analysis by means of lexical evaluation through the Appraisal framework (Martin 1997, 2000a; White 2003) briefly outlined above. Although this approach might seem to offer useful insights into identity, it has not been used in this study. Evaluative lexical items, which, as Crismore *et al* (1993) state, primarily convey content, indicate evaluative stance at a very delicate level of analysis. Use of the more robust approach of metadiscourse analysis instead allows an approach to identity which, while not claiming to "capture every interpersonal feature or writer intention in a coding scheme" (Hyland 2005: 31), enables a distinction to be drawn between such individual lexical items and stance markers which frame an entire proposition in terms of attitude or stance.

Analysing the use of metadiscourse in the two corpora examined in this study provides a means of investigating, through texts from within the same disciplinary field, differences that appear in novice and expert patterns of interaction and how identity is expressed within the social context of the discourse community. The metadiscourse devices in the professional radiology case reports are compared with those described by Hyland for a corpus of research articles from a related field (Hyland 1998d, 2005) and this provides a means of identifying the features that characterise the case report as opposed to other academic writing. Work by sociologists (e.g. Atkinson 1995; Hunter 1991) on the language of medical reporting, as discussed in the previous chapter (2.4), also provides a context in terms of which metadiscourse features may be understood and explained. The writer identity that is revealed in this way is compared with the identity realised by student writers.

The tools for the metadiscourse analysis undertaken in Chapter 4 are based on the model established by Hyland (2005) and discussed in the previous chapter (2.2.3). This model provides clearly defined ways of identifying metadiscourse features and mapping them to the social context in which they are used. There are two important issues for identification and analysis of metadiscourse in texts in Hyland's model. The first of these is that it is a relative and pragmatic concept, with metadiscourse items only able to be identified in relation to their co-text. Thus, according to Hyland (2005: 24), "what might be metadiscourse in one rhetorical context may be expressing propositional material in another, and analysts must always examine each item individually to determine its function." An example of the difference between internal and external transitions, showing how only the former function metadiscoursally, was provided in 2.2.3. The second issue is that, while the writer is involved communicatively throughout a text, it is only where the relationship between the writer and the text is overtly signalled that it can be identified as metadiscourse. Hyland (2005) points out that it is precisely the fact that the writer explicitly crafts the discourse to produce a particular effect that makes the use of metadiscourse interesting.

It was suggested in the discussion of Hyland's model in the previous chapter (2.2.3) that the subcategory of evidentials (i.e. attributions of ideas to their sources) belongs in the category of interactional features, which focus on building up an acceptable persona for the *writer*, rather than in the category of interactive features, which deal with the needs of the *reader*. Revising the model to reflect this would result in the rhetorical features through which the interactive and interactional dimensions are expressed being grouped as in Table 3.8 below. This table, while differing from Table 2.1 in the previous chapter by showing evidentials within the interactional category, repeats, for the reader's convenience, the functions and

examples already provided in the latter.

Table 3.8 Revised interpersonal model of metadiscourse (based on Hyland 2005: 49)

Category	Function	Example
Interactive	*Help to guide the reader through the text by*	
Transitions	expressing relations between main clauses	No evidence of exposure to asbestos could be obtained. Contact with the mineral would, **in any case**, be most unlikely to cause this x-ray appearance in so young a patient (*LDCA*).
Frame markers	referring to discourse acts, sequences or stages	**This article describes** an unusual cause as a result of tortuosity of the internal carotid artery(*TICA*).
Endophoric markers	referring to information in other parts of the text	Extensive dystrophic calcification was present (**Figure 3**) (*HTGL*).
Code glosses	elaborating propositional meanings	He was given various diagnoses **such as** transient ischaemic attacks and migraine by different neurologists (*BAFE*).
Interactional	*Involve the reader through intruding and commenting on the text by*	
Evidentials	referring to information from other texts	**Pollack and Popky** reported small peripheral tumours in five of none patients (*SSRH*).
Hedges	withholding commitment and opening dialogue	**About** 0.01 % of mycobacterial infection involves the skull (*PCTU*).
Boosters	emphasising certainty or closing off dialogue	This case report illustrates a case of cardiac volvulus which was **clearly** evident radiologically(*CTOR*).
Attitude markers	expressing writer's attitude to proposition	Learning to recognise these diagnostic pitfalls is an **important** aspect of the interpretation of medical diagnostic images(*DCAR*).
Self mentions	making explicit reference to author(s)	**Our** patient is unusual as the cysts disappeared so rapidly(*DBCY*).
Engagement markers	explicitly building relationship with reader	The presence of any breast mass in a patient over 50 years of age **should** however be viewed with suspicion(*ENPC*).

The central feature of Hyland's model is the presentation of metadiscourse, not as a description of stylistic effects produced piecemeal by writers but rather as a coherent set of resources which allow writers to position themselves and their arguments in relation to the contexts in which discourse occurs. This means that metadiscourse use is "linked to the norms and expectations of particular communities through the writer's need to supply as many cues as necessary to secure the reader's understanding and acceptance of the propositional content" (Hyland 2005: 60). The analysis of the case reports which is undertaken in Chapter 4 provides an insight into writer identity and goals by describing the particular metadiscourse resources drawn on by writers as they project a shared context and an acceptable persona.

3.1.5 Relationship between aspects of the methodological framework

Both the notion of genre and that of metadiscourse provide ways into exploring writer identity and they form the two foci of textual analysis chosen in this study for reasons that have been put forward in this chapter and the previous one. Figure 3.1 below attempts to

show diagrammatically how these foci are related in terms of levels of context and the analytical constructs utilised in the study, suggesting a model which enables identity and purpose at more than one level to be located coherently within a single framework.

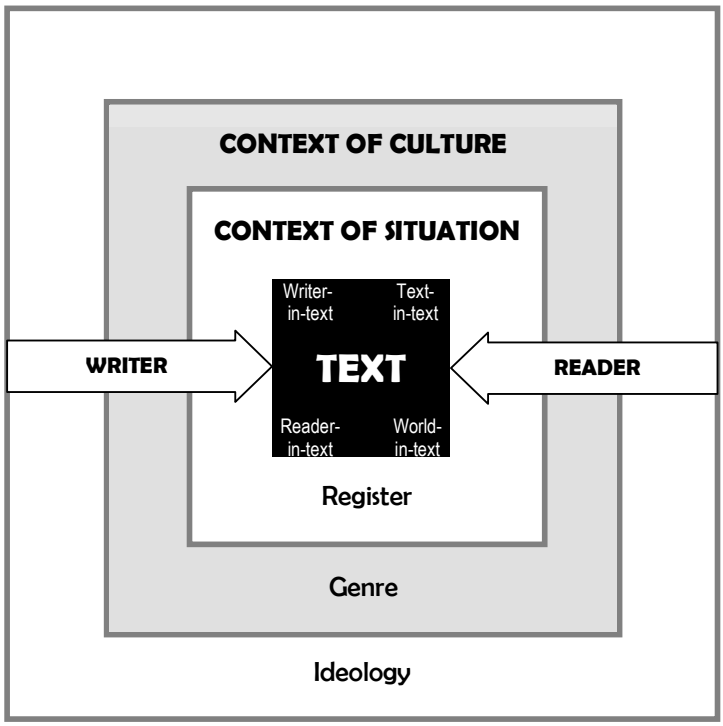


Figure 3.1 Levels of context and how they relate to text and to writer and reader

The diagram attempts to capture the way different contexts are realised in text, as suggested in the systemic functional approach, discussed in 2.2.1, while at the same time integrating this representation into a wider framework that accounts for writer identity as expressed in text at more than one level. Text is shown as central to the various contexts, which both constrain its production and are, at the same time, shaped by it (as in Fairclough 1992c). The various levels of context in which text is embedded are shown surrounding it in the diagram, denoting that "the choices realized in text are themselves the realization of contextual dimensions, including specific situational configurations of field, mode and tenor (register), cultural conventions (genre) and ideological positions" (Eggins 2004: 327). The levels of context are shown nested within each other in order to capture the relationship of realisation holding between them, with smaller units being recontextualised by larger ones. Thus ideology impacts on genre and register, while the impact of genre is on register. This is termed metaredundancy by Lemke (1995: 104), who explains it as specifying "the conditional probabilities for co-occurrence of various alternatives in various contexts

hierarchically so that higher level alternatives (e.g. social class of speaker) co-occur with entire probability distributions linking, say, semantic types of utterances to situational uses."

The various levels of context simultaneously offer choices and constrain the writer. Because identity has been operationalised in this study as purpose, context of culture (the particular level of context associated with purpose) is highlighted in the diagram together with the analytical construct of genre, which functions to describe purpose at a macro-level. Nevertheless, as the diagram makes clear, any exploration of purpose involves meanings related to each level and reference is made in the analyses to register and ideology where this is useful in ascertaining boundaries of genre moves or in comparing texts across the two corpora.

The writer and the reader are represented as producing and interpreting text respectively and at the same time being constructed by the text (writer-in-text and reader-in-text). As Thompson, P. (2001: 51) explains, "[i]n choosing to express an idea in a particular way, the writer is constructing the world, and a persona, and in addressing an imagined audience is constructing a readership through the text." The relationship between the writer and reader of the text, the basis of communicative purpose, is demonstrated as embedded within these levels of context and as expressed within the text. I have argued above that an important way in which this relationship is articulated is in terms of metadiscourse and therefore the constructs of writer-in-text and reader-in-text and world-in-text, as suggested by Ivanič's (1998: 96) diagrammatic explanation of the representation of writer and reader in text, are shown diagrammatically within the central box which represents text. While Ivanič does not refer to metadiscourse as such, she clearly locates within text the constructs of writer-as-character, reader-as-character and subject matter and the relationships between them. Subject matter is shown in my diagram as world-in-text (cf Hunston 1985). The nomenclature I have chosen emphasises the fact that these constructs are explicit in the text. Also included in the model is the reflexive construct of text-as-text, since one of the functions of metadiscourse is to frame elements of text (see 2.2.3). In this way, the model above seeks to present metadiscourse as another important means of realising purpose and identity in text. The diagram as a whole suggests how the various analyses undertaken in the study are related within a single framework so that identity and purpose may be described at more than one level. Before discussing these analyses of the data, I will in the following section, describe the way in which the data collection was undertaken.

3.2 DATA COLLECTION

The focus of this study is on professional identity in the writing of medical case reports. A specialised corpus of professional radiology reports by health professionals is analysed in terms of the approaches outlined above in order to provide a benchmark for comparison with a corpus of student written discourse. The two corpora of case reports are compared in order to establish to what extent the student writers have positioned themselves as professionals and to what extent they are able to project an appropriate identity in their texts.

The professional corpus is made up of a closed corpus of 20 case reports with a total word count of 14 593. These texts are listed by title in Appendix 1 together with the abbreviations used to refer to them in the study. The abbreviation in each case refers particularly to the pathology that is the topic of the report and consists of the initials of the relevant terms. Each abbreviation is standardised to four letters, by means of the inclusion of additional letters from the last relevant word if necessary; thus, for example, *SPOL* is the abbreviation for *Sphenochoanal polyp*. The reports have been selected randomly from two journals that were available to the students in the library at the time when they wrote their assignments, namely the *South African Radiographer* and the *South African Journal of Radiology*. It was decided to include both to achieve a wider spread of writers in the medical hierarchy, in other words both radiologists and radiographers, the former publishing in both journals and radiographers publishing in the *South African Radiographer.* Both were available in the library for the students and could have provided relevant models of case reports for them.

There are a few instances of reports by student writers in the *South African Radiographer* but when they occur they are explicitly indicated as such by the editor and thus distinguished from the texts authored by professionals. After examination of one of these examples (interesting because the writer was a second-year student from the department that provided me with the assignments forming the student corpus), it became clear that the genre structure of this report was slightly different from others in the published corpus and that this corpus might be more coherent if student authored reports were not included in it. Because all the articles in the corpus appear in journals in the same field, it is assumed that they may be accepted as representative of case reports in the specialty of radiology. This homogeneity in the corpus is as important as the size of the corpus, which is in any event twice as large as the number of texts suggested as sufficient for a study of linguistic differences between groups of texts by Biber *et al* (1998). Anthony (1999), in a study of

engineering research article introductions, makes the point that while many genre studies have used a large corpus of articles from across a number of disciplines, the result is that the number of articles representing each discipline is actually very small. The number of articles in the professional corpus considered in this study is comparatively large since it comprises 20 case reports. At the same time the number of texts is small enough to allow investigation at sufficient depth.

The professional corpus is compared with a corpus of student written discourse comprising 20 texts (totalling 29 915 words). These pathology reports were written by a class of second year radiology students during their training block at various hospitals where they worked as student radiographers. The reports are listed by title in Appendix 2 together with the abbreviations used to refer to them in the study. As with the professional reports, the abbreviations refer to the pathology that is the topic of the report but are distinguished from them by consisting always of three letters, for example, *WTU* as the abbreviation for *Wilm's tumour*. It should be noted that the student writing is not examined from a deficit viewpoint but rather from an explanatory one, the goal being insight into the extent to which the students might show mastery of a target genre and also an understanding of why, by comparison, the expert writers might make the choices they do. Hyland and Tse (2005) use a similar methodology in comparing novice and professional corpora because of the way in which this enables them to identify the academic practices of experts in relation to their use by a student population.

All the students in the class group gave me permission to use their texts for this study and brought them into the department for scanning. Subsequently I met with them in three self-selected focus groups with between four and seven students in each to explain in more detail the purpose of my research and to get their permission to quote from their assignments and the interviews. It was made clear to them that the anonymity of the authors would be ensured in the study and when comments from the students are quoted in Chapter 4, each is designated by an initial rather than by name. The students were also invited to view and comment on the study once completed.

The focus group discussions, held in an available seminar room, were semi-structured (Cohen and Manion 1985) and, while the same basic questions were asked of each group to ensure that similar types of information were obtained, the resulting discussion was not restricted (see Chin 1994a). The interview plan (see Appendix 3) was aimed at eliciting information about the students' writing practices and strategies and about their

understandings of the social and contextual factors involved. It was in part drawn from Biber's (1994) situational parameters of register variation, being informed by topics such as the communicative characteristics of the writer and the audience; social role relations and the extent of shared knowledge of writers and audience; the purpose and characteristics of the communication; the relation of the writer and audience to the text; and rhetorical knowledge. Questions were asked about how the students learned what was expected in a case report and what the process of writing the report entailed. Other themes in the interviews were the students' understanding of the expectations their lecturers had in setting the case reports and the relationship of the former as writers with the latter as readers of the reports. The attitudes of the students to their cases, the purpose of doing the assignment and, finally, what they had learned from the process and from the feedback they had received were discussed.

These discussions were videotaped and transcribed (see Appendix 4). The advantage of the video recording was that I did not need to make notes during the discussion and also that it was easy to identify the speakers in transcribing the interviews. The transcription allowed the ideas expressed by the interviewees to be revisited during the analysis. Due to a technical problem the recording of the third focus group discussion was inadvertently cut short so that the last part of the discussion regarding goals and feedback was lost. Despite this, the transcriptions together provide a rich source of data for supplementing and understanding the writer identities which emerge from the written texts, thus providing an insider perspective.

The lecturer who set the case report assignment and assessed half of them was also interviewed and an audio recording of this interview was transcribed (see Appendix 4). She was asked about her expectations and how she thought students learned to tackle this new sort of assignment. The differences she observed between the assignments and professional reports were explored. Her comments provide additional insights into the context for the writing of the student assignments.

Both the professional and the student corpus of texts were scanned to produce electronic versions. Illustrations and tables together with their captions were excluded from this process and the focus in the analyses is on the written discourse. While images in the form of small reproductions of X-ray films and CT scans, together with detailed explanatory captions, are included in all the professional papers and are obviously of importance in providing primary evidence to fellow practitioners of the diagnoses discussed in the text,

these images are predictably objective and realistic. The students include copies of any available x-ray films as appendices, not integrated into the written text but in the form of film (which, according to the lecturer, end up as additions to the departmental x-ray library). Other illustrations used by students are occasional anatomical diagrams from textbooks, relevant more to anatomy than to pathology and radiology, and never found in the professional reports. They have a different function from the reproductions included by the professionals, "not proving but picturing" (Myers 1992: 12). It thus appears that, although Halliday (2008: 19) emphasises that the textual fusion of visual aids "takes place in the semantics [and h]ence the whole text is accessible to a linguistic theory," the visual images are treated so differently in the two corpora that it would be difficult to provide a systematic comparison of their use. For this reason, although Kress and van Leeuwen (1996) provide a system for analysis of images based on systemic functional grammar, I have not included this type of analysis in Chapter 4. Nevertheless, references to the images are made in the texts (particularly in the professional reports) and the difference in the way this sort of reference is handled in the two corpora is dealt with as part of the comparison of metadiscourse features (4.6.2.2).

The way the various analyses discussed above are used in practice in the study is the topic of the next section of this chapter.

3.3 ANALYSIS OF TEXTS

The methodological framework outlined in 3.1 has indicated the most important analyses that are used in my study. These are a genre analysis (including analysis of relevant text types) and a metadiscourse analysis. These two dimensions of analysis reflect two different ways of looking at purpose and identity in texts and were used in analysing two corpora of texts as reported on in Chapter 4. Scholars have increasingly seen a complementary relationship between functional theories of language and the use of corpora and have used corpus analysis approaches as a methodology to study linguistic variations (Biber *et al* 2007; Flowerdew 2001; Meyer 2002; Thompson and Hunston 2006). Biber *et al* (2007) have noted a growing trend toward using the framework of move analysis as a top-down approach to corpus linguistic analyses of patterns in specialist corpora. While part of the current study adopts a similar top-down approach, it involves analysis of a more limited number of texts (20 in each corpus). This limit allows for a comprehensive manual analysis, while at the same time providing sufficient data for generalisations to be made. A manual analysis was chosen also because the appropriate tagging software was not available to me

at the time. This manual approach proved to be extremely labour intensive and time-consuming. However, it avoids a weakness of the corpus linguistic approach, to the extent that items have to be pre-selected for analysis, and ensures that all the relevant features are described. Thus, while the use of two specialist corpora allows a simultaneous top down and bottom up approach to text, this takes the form of a linear rather than a corpus linguistic approach in order to ensure that all relevant features are considered.

A social view of writing accounts for the notions of purpose and context and, accordingly, forms a basis for an exploration of identity in text. The particular theoretical framework for context and meaning adopted in this study, as described in 3.1.1, is that of SFL, which explains genre as a realisation of the context of culture and links this level of context both with the context of situation, realised by means of lexicogrammatical patterns, and with ideology. Because of this theoretical link, reference can be made to lexicogrammatical patterns and ideological meaning in the central genre analysis as indicated in the previous discussion (3.1.3). It was also suggested in 3.1.4 that metadiscourse provides insights into identity and purpose at another level since it describes the way that writers signal their attitude to the subject and the reader and thus reflect social and professional alignments. An account of how the analyses are applied to the two corpora of case reports follows, first with regard to genre analysis (3.3.1) and then metadiscourse analysis (3.3.2).

3.3.1 Genre analysis

This section deals first with the way genre will be analysed and how validity in the analysis may be ensured (3.3.1.1). Because text types are framed within the genre, the text type patterns found within the case report genre are also described (3.3.1.2) and finally the role of lexicogrammatical analysis in helping to establish the move structure of the report genre is covered (3.3.1.3) and a summary of the section provided (3.3.1.4).

3.3.1.1 Genre

Various approaches to the concept of genre have been discussed in 2.2.2. In the work of scholars such as Swales (1990, 1998) and Martin (1992), genre is treated as structured, socially purposeful and reflective of disciplinary differences and it is this sort of approach that will be drawn on to establish the genre structure of the radiological case report in this study. Swales and other ESP researchers in particular have shown how the notion of the disciplinary community can provide a way of explaining how novices learn to participate in

the genres associated with a discipline. This view of genre was been developed in order to assist students with writing in professional and academic contexts and genre is seen as a class of communicative events linked with a particular community of practice. Such an approach to genre analysis is useful for a study of the writing of radiography students, who are beginning to participate in the professional community and learning to identify themselves to some extent with appropriate institutionally defined roles and purposes in their discipline.

Another reason for drawing on the ESP approach to genre description is that detailed descriptions of various sections of research articles have been developed in various disciplines and fields in terms of moves and steps (the analytical concepts of moves and steps were defined in 2.3.3). The genre of the case reports is related to that of the research article, with both competing for space in medical journals. The work of Swales (1981, 1990, 2004) and others on article introductions provides a description that forms the basis of an interesting comparison with introductions in case reports. Medical research articles in particular have also been the subject of analysis by Nwogu (1997), following this approach.

While lexicogrammatical features may sometimes be associated with particular moves and changes in patterns may indicate move boundaries, genre structure is determined not primarily by form but by functional values. Drawing boundaries between moves tends thus to be subjective and move structure is probabilistic. Skelton (1994: 456) describes the process of analysis as follows:

> Move structure analysis tentatively assigns a function to a stretch of…text, identifies that function with one, or a set of, exponents which signal its presence, and seeks to establish whether or not the pattern identified is a general one, by reference to ostensibly similar texts. If the pattern can be generalized, its status as a move is confirmed.

Lewin *et al* (2001: 34) suggest that these exponents can be represented as a network specifying the kinds of participants and claims necessary to realise an act. They define a move as consisting of "an obligatory [head] act plus slots for optional acts". The analytical units of move and step, which will be used in describing the genre structure of case reports in this study, were defined and the relationship between them and lexicogrammatical patterns discussed in 2.3.3. The role of lexicogrammatical patterns in identifying particular moves in the genre analysis undertaken in Chapter 4 is illustrated in this chapter in 3.3.1.3.

Since move analysis is subjective, the concept of validity of analysis arises. It has been

suggested in the literature that the validity of the analysis can be confirmed by means of inter-rater agreement (Crookes 1986), by means of a specialist informant from the relevant discipline or by comparison with results from other approaches such as clause relations (Dudley-Evans 1994) or thematic analysis (Mauranen 1993b). In the current study, insider understanding of information and of the way meaning is constructed in medical prose was ensured by means of discussions with a specialist informant, a medical practitioner working in the field of radiology. In addition, the analysis of the Problem-Solution pattern in the case presentation section of the case report provides corroboration of the proposed move analysis for this section by indicating boundaries that match with the move boundaries. Changes in patterns of themes and transitivity also frequently support move analysis (see 3.3.1.3). Finally, the introductions of case reports are similar in move structure to those of research articles and these similarities also support claims of validity for this portion of the analysis.

In establishing the moves that characterise the genre of the radiographic case study in Chapter 4, I follow the approach introduced by Swales (1981, 1990) and expanded on in Nwogu's (1997) study of medical research papers. While there are no established rules for carrying out a move analysis (Biber *et al* 2007), Nwogu's approach indicates the sort of procedures that may be followed. Nwogu (1997: 122) defines a move as "a text segment made up of a bundle of linguistic features (lexical meaning, propositional meanings, illocutionary forces, etc.) which give the segment a uniform orientation and signal the content of discourse in it." In this way moves are determined primarily by inference from context and by means of linguistic clues. These latter include lexical items which signal information contained in the move, as in (11) below:

(11) The pre-and post-contrast computerised tomography **scans**…**revealed**… (*AVGA*).

In this example, the reference to radiological investigations and the use of the process *revealed* indicates that this segment of text is presenting a description of the findings.

The exponents signalling the move may, according to Nwogu, include summary expressions, for example:

(12) **In conclusion** although our results were satisfactory, we hope that… (*HTGH*).

They may also include discourse conjuncts, for example:

(13) **However** intracranial air is not a diagnosis in itself (*IAEA*).

Each of these linguistic expressions signals the start of a new move in the report from which the examples are taken. Together with this analysis of content, lexicogrammatical patterns should be taken into account in signalling moves (see 3.3.1.3).

The stages in the identification of moves suggested by Nwogu (1997: 123) are listed in Table 3.9 below. In order to use them in my analysis it is necessary to expand on Nwogu's suggested stages by including a reference to lexicogrammatical patterns (Stage 5). The assigning of function and local purpose (Stage 4 below) is identified by Biber *et al* (2007) as the most difficult stage of analysis requiring multiple readings of the texts. It should also be noted that, in the first stage of this process for the corpus of case reports, I drew when necessary on the insider knowledge of my specialist informant.

Table 3.9 Stages in the process of move analysis (based on Nwogu 1997)

Stage 1	Identification of important information
Stage 2	Searching for associated linguistic clues in the text segment
Stage 3	Classifying the context of discourse based on linguistic clues
Stage 4	Assigning discourse functions to the information in segments of text (moves) and in the constituent elements of information in the segments (steps)
Stage 5	Identifying corroborative lexicogrammatical patterns
Stage 6	Establishing whether the functions identified can be generalised across other texts in the corpus.

An example of the process designated by these stages is provided with reference to the following three sentences from the start of the discussion section in one of the case reports from the professional corpus (*LDCA*):

(14) The little girl came from Gordon's Bay, a coastal village near Cape Town. No evidence of exposure to asbestos could be obtained. Contact with the mineral would, in any case, be most unlikely to cause this x-ray appearance in so young a patient (*LDCA*).

The patient described in this report is a child whose x-rays show changes considered to be typical of asbestosis. The authors, however, find that there has in actual fact been no exposure to asbestos and they therefore suggest that the accepted interpretation of linear diaphragmatic calcification should be revised. This particular passage starts with an explanation of the impossibility of the patient's having been exposed to asbestos. This is important information (Stage 1) that refers back directly to the niche that was established previously in the introduction of the report and it suggests that the niche is being re-established at the start of this section. The phrases *no evidence of* and *in any case* support

this (Stage 2) since they indicate that a claim is being argued and that a rationale for the report is being established (Stage 3). The stretch of text displaying the features identified is therefore assigned the rhetorical function of *Re-establishing niche* (Stage 4). The use of themes, which take the form of grammatical metaphors referring to events as things (*exposure*, *contact*) that can enter as participants into propositions, also supports this (Stage 5). Finally, the function can be generalised across the corpus and is present in 95% of the reports (Stage 6) (see data for Move 9 in Table 4.2).

Swales (2004) states that, because the move is a functional unit, it can be realised grammatically as any structure, from a clause at the one extreme to multiple sentences at the other. However, it has been noted in more than one study that there are sometimes instances where the rhetorical function of two moves is achieved within a single clause (Anderson and Maclean 1997; Crookes 1986; Dubois 1997).

Table 3.10 Examples of clauses realising more than one move

HTGL	*Postlobectomy*	**Reporting management of problem** (nominalisation could be congruently realised as "after the surgeon had performed a lobectomy/ removed the patient's lobe")
	thyroid scintigraphy and ultrasound showed no residual thyroid tissue on the left side	**Evaluating response to treatment**
TICA	This article describes…a result of tortuosity of the internal carotid artery	**Presenting present work**
	…an *unusual* cause as…	**Establishing niche**
BAFE	He was initially treated with Warfarin	**Reporting management of problem**
	without relief of symptoms	**Evaluating response to treatment** (nominalisation which could be congruently realised as "but this did not relieve the symptoms")
	Subsequent treatment with Aspirin	**Reporting management of problem** (nominalisation could be congruently realised as "after this the medical team treated him with Aspirin")
	alleviated some of the symptoms which further decreased	**Evaluating response to treatment**
	with the addition of Persantin.	**Reporting management of problem** (nominalisation could be congruently realised as "when the medical team added Persantin to the patient's regimen")

This phenomenon also occurs infrequently in the professional corpus of case reports as shown in Table 3.10 above where rhetorical functions that are frequent in the corpus as a whole and generally realised by means of longer stretches of text appear in the form of phrases. It thus appears that it is actually possible for a move to be realised at an even lower structural rank than suggested by Swales. The case report is a compact genre, with

the professional texts averaging 860 words each, and this fact may influence the compacting of moves demonstrated here (see also Pho 2008).

In addition to variation in the way in which moves are realised, there may also be variation in the distribution of the moves identified as constituting the genre or a section of the genre. In other words, moves that generally occur in a genre may not occur in particular texts and the order of moves may differ from the norm. This is explained by means of prototype theory by Ventola (1987, 1989) and Martin (1992) and implies that texts in the same genre can be identified in terms of structures drawn from a common repertoire (Lewin *et al* 2001). The description of the case report genre proposed in Chapter 4 is presented as a prototypical structure of moves, with the range of move orders and variations in order stability occurring in the corpus being dealt with in the related discussion.

In his discussion of the ordering of the moves in research article introductions, Swales (1990) points out that exceptions to general patterns are expected in grammar and even more so in discourse. He nevertheless maintains that there are good reasons for reflecting in his model the "suitably robust preferred orders" that occur in texts (Swales 1990: 145), referring to the acceptability of a 10% rate of anomalous ordering of moves in the introductions of research articles. This, however, does not assist the analyst in making a decision as to exactly where the boundary for the "suitably robust" may be drawn (would, for instance, a rate of 15% of anomalous ordering still allow the preferred order to be considered robust?) nor to decide whether to assign separate status to moves which show a close relationship in terms of purpose. There is also the issue of the acceptable cut-off point for frequency in establishing the status of a move.

Skelton (1994) uses a combination of criteria that extend beyond the basic principle of the association between function and lexicogrammatical signals, to deal with matters of frequency and order. He proposes that a move be considered a "major feature" if specific criteria of both frequency and order stability are met (Skelton 1994: 456). Thus if a move occurs in at least 65% of the corpus and has an order stability (calculated in terms of the percentage occurrence of a move with the same moves both before and after it in a particular section) of 50%, then the move qualifies as a major feature, or core move. When the frequency is 85% or more, the order stability requirement falls away. In this study I will follow Skelton's approach in designating moves as core (major features) or non-core since this is a useful way of balancing the importance of the regularity of pattern and the frequency of occurrence of a particular move and provides insights into the differences that

appear between the two corpora of case reports compared in the study (see 4.4.2).

The move analyses undertaken by Swales (1990) frequently make use of subdivisions, or steps, within a move. These steps represent the ways in which the purpose of the move may be realised. Bhatia (1993, 2001) makes a distinction between steps (sub-moves) and strategies (tactical choices). This distinction appears to indicate a functional difference between stages within the moves of a text and strategic ways of realising a move or step. Steps differ from strategies by being part of a series and occurring in a particular order (Henry and Roseberry 2001a). Bhatia equates steps and strategies respectively with Swales's (1990) steps (which are numbered in a series, e.g. Step 1 and /or Step 2…, and may or may not be chosen) and optional steps (e.g. Step 1A or Step 1B… of which only one may be chosen). For example, in the case reports, Move 3 (*Occupying niche*) can unfold as two steps, Step 1, *Announcing present work,* and Step 2, *Announcing additional report contents,* as exemplified in Table 3.11 below:

Table 3.11 Example of a move consisting of two steps

Case report	Occupying Niche (Move 3)	
	Step 1: Announcing present work	**Step 2: Announcing additional report contents**
PCTU	We present two paediatric cases of calvarial TB	with discussion of the relevant literature.

The steps in this example are obviously part of a series and occur in a particular order (Henry and Roseberry 2001a). Step 1 itself may be realised by alternative strategies as either a descriptive or a purposive announcement, as demonstrated in Table 3.12 below:

Table 3.12 Examples of strategies for realising Step 1 in Move 3

Case report	Step 1: Announcing present work	
	Step 1A: Announcing present work descriptively	**Step 1B: Announcing present work purposively**
PCTU	We present two paediatric cases of calvarial TB	
CTOR	This case report illustrates a case of cardiac volvulus which was clearly evident radiologically.	
HTGL		The aim of this report is to discuss the importance of the combination of scintigraphy and ultrasonography prior to fine needle aspiration (FNA) in the diagnosis and management of swellings of the thyroid gland.

Bhatia's distinction between steps and strategies is used also by Kwan (2006) in her description of thesis literature reviews. It is, as will be seen in the report of the analyses in Chapter 4, possible to maintain the distinction in the professional corpus of case reports in this study. However, it is not necessarily always clear cut. Swales (2004: 232) himself

suggests an analysis of a research article introduction with Step 1 of Move 3 stated as "Announcing present research descriptively *and/or* purposively" (italics not in the original). Here the choice between describing the research and announcing its purpose seems to be a strategy but it is indicated that *both* strategies can be chosen. This presumably is why they cannot be labelled Step 1A and Step 1B respectively and, by Bhatia's definition, they are not strategies even though they are non-discriminatory. There seems to be no clear logical reason why a writer may not choose to use more than one strategy within the same move but if this is allowed there is then no clear cut distinction between steps and strategies. In the move analysis in Chapter 4, I retain the original labelling as suggested by Swales (1990) in his CARS model.

Move analysis as it relates to the lexicogrammar is further discussed in 3.3.1.3.

3.3.1.2 Text type

The distinction between genre and text type was discussed in 2.2.2.4, the former being defined in terms of communicative purpose and the latter in terms of linguistic features. It was also noted that the Problem-Solution pattern occurs across a range of genres and that there are scholars who show the importance of accounting for both genre and text type patterns in discourse descriptions (Bruce 2008a; Flowerdew 2003; Paltridge 1997), although Bruce, it should be noted, would term this text type (or cognitive genre, in his terminology) a Recount realised by the Problem-Solution discourse pattern.

Swales (1990) accounts for his decision not to describe the introduction of a research article in terms of the Problem-Solution pattern by indicating that this would not sufficiently foreground the rhetorical work that is being done by the researchers in terms of indicating their contribution to the relevant research area. Similar rhetorical work is also an important function in the introduction of the case report and thus, in order to reflect this and to capture the similarities and differences across the genres, the ecological model represented in Swales's labeling of moves in the introduction, as discussed in 2.3.3, has been adopted in this study and will form the basis of the analysis of the case report introductions provided in Chapter 4. This model shows the rhetorical work necessary for a writer to claim significance for his or her research and how it fills a niche in the field.

Lewin *et al.* (2001) believe that moves in introductions could have developed from the narrative text type. Move 1 (*Establishing territory*) can thus be seen as providing the

Orientation, Move 2 (*Establishing niche*, by suggesting a gap in clinical knowledge or problems with diagnostic practices) the Complication and Move 3 (*Occupying niche*, by introducing the case and report) the Resolution. Hoey (2001) labels this sort of pattern, which he identifies as occurring more widely than in academic writing alone, the Gap in Knowledge-Filling pattern.

Even if the introduction in research writing is not best described by means of the Problem-Solution pattern, it has nevertheless been shown that this pattern is frequently found framed within a range of genres (Hoey 1983) either incorporated as part of a move or subsuming more than one move (Flowerdew, L. 2000, 2003; Paltridge 2001). A Problem-Solution sequence is clearly in evidence within the genre of the case report in the case presentation itself. Several commentators on medical discourse (Atkinson, P. 1992; Brown 1993; Hunter 1991) have noted the way in which case presentations are shaped as a mystery story through the use of narrative elements which make use of this typical structure. The case presentation is always the story of a patient who seeks medical assistance to solve the problem presented by his or her symptoms. The response from the medical profession is a series of investigations leading to a diagnosis and, often, a course of treatment, which is then evaluated. It will be important to compare the way the student writers handle the use of this text type in comparison with the professional writers.

In the Problem-Solution analyses discussed in Chapter 4, the Problem is usually signalled by non-evaluative items, such as *swelling, lacerations* and *mass.* These represent the presenting symptoms of the patient. When the Problem is independently signalled in this way, the Response can then be identified by using one of Hoey's (1983: 57) mapping conditions, applied when "two parts of a discourse, *a* and *b*, [are] in a Cause-Consequence relation. If (i) *a* has been independently established as Problem and (ii) *b* contains the role of agent, then *b* is Response."

Thus in the following extract (with letters inserted as used in the mapping condition above and items in brackets provided to clarify the relations), the Problem is lexically signalled by reference to the patient's history and is in a Cause-Consequence relation with the following phrase referring to the subsequent examination, as indicated by the possibility of introducing an explicit signal *resulting*:

(15) (a) The patient is a 32-year-old woman who was referred for MR imaging because of a long history of intermittent headaches…. (b) Her (resulting) physical examination (by the doctor) (c) was unremarkable (and no diagnosis was made).

Her physical examination is a grammatical metaphor (Halliday and Matthiessen 2004) which can be congruently reworded as *the doctor examined her*. This rewording makes explicit the agent. Thus (b) contains an agent and can be identified as a Response. (c) can be labeled as a Negative Result because it is implied in the particular context of situation that the explanation for the patient's symptoms (i.e. the diagnosis) is not yet forthcoming. These sorts of relations form the basis of the case presentation sections and the ways in which the student and professional writers use this pattern are discussed and compared in the next chapter (in 4.3.3.2 and 4.4.2.5 respectively). Another text type, occurring in the discussion section of the case reports, makes use of the General-Particular pattern (see 4.3.3.4 and 4.4.2.7).

3.3.1.3 Lexicogrammar

Eggins (2004) suggests that a text may be of interest to the analyst either because of its context (an interest originating from 'above') or because of its language patterns (an interest originating from 'below'). The type of interest would indicate what sorts of questions are explored and what types of analyses are undertaken. In the current study, the focus of interest is on context and the research questions, listed in Chapter 1 and again at the beginning of this chapter, are framed primarily in terms of genre. Nevertheless, because of the theoretical framework adopted, where genre is realised in terms of probable register patterns, an analysis of some of the lexicogrammatical patterns that occur in the texts making up the corpora is necessary.

The various systems of analysis of lexicogrammatical features as they relate to the three metafunctional levels of meaning, namely the experiential, the interpersonal and the textual have been described in 3.1.2.1 and an example of analysis of a single clause in terms of these three strands of analysis was provided in Table 3.1. The particular SFL systems that have been found to be particularly useful in this study are transitivity, in relation to textual meanings, and thematic analysis, in relation to textual meanings. Interpersonal meanings are analysed in terms of metadiscourse features as discussed in 3.1.4.

In the discussion on genre analysis above it was mentioned that the lexicogrammar sometimes characterises particular moves and that changes in patterns of such features may indicate move boundaries. One way in which lexicogrammatical patterns may be implicated in move analysis is demonstrated in the extract analysed in Table 3.13 below.

Here the change from themes referring to the patient to themes relating to investigations signals a move boundary between a move which functions to report the patient's problem (Move 4: *Reporting problem* in the move structure established in Chapter 4) and a move which reports the investigation of the problem leading to the diagnosis (Move 5: *Reporting investigation of problem*).

However, in this example the transition between the two moves is provided by a sentence that has a theme that both refers to the patient and also to the physical examination she underwent, namely, *Her physical examination was unremarkable.* The question arises as to where the boundary between two moves could be said to occur and whether an account of the clinical examination should be included as part of Move 4 rather than including it into Move 5, together with the central accounts of radiological investigations. Nwogu's (1997) approach, discussed in 3.3.1.1, regards the move structure as a bundle of linguistic features indicating content. Relying on propositional content alone is problematic in the analysis since it could equally easily be argued that the radiological investigations should constitute a separate move or, alternatively, that there seems to be a natural division in purpose between reporting first the symptoms and patient history with which the patient was admitted for investigation and subsequently the actual investigations undertaken by the medical personnel presenting the report, these investigations routinely starting with physical examinations and culminating in the radiological investigations which led to a diagnosis.

Table 3.13 Example of a change in thematic pattern indicating a move boundary (*DGCE*)

Themes	Clauses	Moves
Referring to the patient	**The patient** is a 32-year-old woman, **who** was referred for MR imaging because of a long history of intermittent headaches. **She** was otherwise healthy, with no medical history of note. **On specific questioning** *she* mentioned **that she** recently found it difficult to walk in a group, **since she** kept bumping into people.	**4: *Reporting problem***
Referring to investigations and findings	**Her physical examination** was unremarkable. **A mass** located in the right cerebellar hemisphere was found on MR imaging with slight mass effect on the right lateral recess of the fourth ventricle. **No oedema or hydrocephalus** was present. **Some of the folia in the right hemisphere** were enlarged. **The lesion** appeared hyperintense on T2, and iso-intense on \T1-weighted images. **The right cerebellar hemisphere** was enlarged with a thickened cortex, together with a decrease in the amount of central white matter. **Post-gadolinium images** showed absence of enhancement. **Additional findings** were a small venous angioma in the deep white matter of the left cerebral hemisphere, and hypertrophy of the fifth cerebral hemisphere. **Angiography** was normal.	**5: *Reporting investigation of problem***

An examination of other reports confirms the structural pattern in this example,

distinguishing between patient history, together with presenting features, on the one hand (*Reporting problem*) and physical and other examinations undertaken by the medical team involved in the case on the other (*Reporting investigation of problem*), as shown in Table 3.13 above.

Another example of this particular analysis is provided in an extract from one of the professional reports (*SPOL*) in Table 3.14 below, where a description of the physical examination of the nasal tract is included as part of the range of investigations undertaken after the patient has presented at the hospital. The symptoms related in Move 4 can be seen as reporting reasons for the presentation while in Move 5 the focus is on investigative activities:

Table 3.14 Example of Moves 4 and 5 (*SPOL*)

MOVE 4
A 47-year-old male presented to Prince of Wales Hospital with a one year history of right sided progressive nasal obstruction following an episode of upper respiratory tract infection. The obstruction was worse on forced expiration and more noticeable during swimming.
MOVE 5
Nasal endoscopy revealed a right sided solitary polypoid mass with a slender pedicle extending from the sphenoethmoidal recess to the choana. An enhanced CT scan of paranasal sinuses (5 x 5 mm coronal scans) was performed on a GE 8800 scanner.…

This analysis also links with an ideological understanding of the division of labour between groups within the hospital, noted by Atkinson (1995: 103) and realised where the presentation of a case contains "an important transition in the career narrative, separating the pre-consultation from the post-consultation phases" and attributes responsibility accordingly. This distinction may be extended to the division between the medical team caring for the patient who has been admitted and other practitioners. The article is a report by members of a particular medical team (generally at a hospital) on a patient who has been referred by a peripheral hospital or private practitioner and whose medical records provide the new professionals in attendance with an account of the complaint and the medical history.

A second reason for the decision to analyse the move structure in this way is provided by thematic analysis. A change in thematic patterning supports the analysis suggested. This suggests that lexicogrammatical patterns should also be seen as forming part of the bundle of features that make up a move and that an examination of such patterns should be included as part of Nwogu's (1997) outline of the process of setting up genre moves, as described in 3.3.1.1. In fact, moving from themes which refer to the patient (and sometimes

the pathology or symptoms exhibited by the patient) in Move 4 to a theme or marked theme which refers to an investigation or examination is prototypically the signal of the start of Move 5, with only two articles in the professional corpus not following this pattern.

In conjunction with the thematic patterning, a transitivity analysis shows a corresponding change to a particular sub-type of relational process at the start of Move 5 in the majority of the professional reports, as exemplified in Table 3.15 below:

Table 3.15 Example of Moves 4 and 5 showing a change in the patterning of processes (*SPOL*)

MOVE 4
A 47-year-old male presented **[Pr: material]** to Prince of Wales Hospital with a one year history of right sided progressive nasal obstruction following an episode of upper respiratory tract infection. The obstruction was **[Pr: relational/attributive**] worse on forced expiration and more noticeable during swimming.
MOVE 5
Nasal endoscopy revealed **[Pr: relational/identifying/demonstration]** a right sided solitary polypoid mass with a slender pedicle extending from the sphenoethmoidal recess to the choana.

Thompson (2003), in a discussion of the transitivity analysis of a medical case report, notes the difficulties caused by processes such as *reveal* in Move 5 above, as well as *suggest*, *indicate* and others which are characteristic of this genre. Although these might appear to be verbal processes since they express a "symbolic exchange of meaning" (Halliday and Matthiessen 2004: 253), Halliday and Matthiessen (2004) suggest that they are better seen as a sub-type of identifying processes construing the symbolic meaning of demonstration. Thompson (2003: 266) notes that their usefulness in academic writing is not fully captured by either analysis:

> They simultaneously indicate that a process of interpretation by the researcher of the relation is going on (thus validating the Token-Value relation being represented by giving the grounds for the relation), and yet construe the interpretation as self-generated by the phenomenon and not as dependent on any particular Relator. The Relator role is implied but left open – anyone could fill it and would arrive at the same interpretation.

In my analysis these processes have been generally categorised as relational processes but it should be noted that it is as the demonstration sub-type that they may signal a move boundary as in the example above.

Lexicogrammatical patterns may therefore play an important role in guiding the analyst at arriving at an adequate description of some aspects of the move structure.

3.3.1.4 Conclusion

It has been established in the discussion above that the ESP approach to genre provides a useful way of describing the case report. The process for move analysis as described by Swales (1990) has been expanded by Nwogu (1997) to establish a set of principles for distinguishing moves, which are further extended here to include a consideration of lexicogrammatical patterns since these can be shown to play a part in arriving at the move analysis. The distribution of moves constituting the genre is not necessarily identical across examples but should rather be described as a prototypical structure with moves from a common repertoire. Core moves are identified following criteria of frequency and order stability following Skelton (1994). Important text types found as part of the case report genre are Problem-Solution and General-Particular sequences and these will also form part of the description in Chapter 4.

3.3.2 Metadiscourse analysis

As discussed in section 3.1.4, metadiscourse forms a second and complementary analytical focus of the current study. While genre is the primary means of conveying writer purpose, metadiscourse may be seen as one of the micro-level features that also function to signal purpose to the reader (Grabe and Kaplan 1996). The analytical scheme used in Chapter 4 is introduced by means of an overview (3.3.2.1), the interactive (3.3.2.2) and interactional resources (3.3.2.3) are described and the application of this scheme discussed (3.3.2.4).

3.3.2.1 Overview of the scheme for metadiscourse analysis

Hyland's (2005) metadiscourse categorisation scheme, which was discussed in 2.2.3, provides a coherent approach to analysing this aspect of writer identity in relation to the reader and will be drawn on in the analysis in Chapter 4. This analysis is conducted in relation to the moves making up the genre structure, with each move being understood to represent a variation in rhetorical purpose. The major premise of Hyland's model of analysis is that all metadiscourse realises interactions between writer and reader (Hyland 2005). His analytical scheme follows Thompson and Thetela (1995) in labelling the categories of metadiscourse as interactive or interactional. Both interactive and interactional features have complementary roles in expressing identity in texts. The category of interactive resources is related to how the writer assesses the reader's needs in coping with the text while interactional features allow the writer to involve the reader in the text. While I follow

Hyland's categories in general, the devices of evidentials will be recategorised as interactional in the framework employed as was indicated in Table 3.8. This recategorisation seeks to capture the role of evidentials in building up the required credibility of the writer in the text, as discussed in detail in 2.2.3.

The various subcategories of both interactive and interactional metadiscourse resources as set out in the model in Table 3.8 encapsulate the way in which "writers refer to the text, the writer or the reader" (Hyland 2005: 48). Each feature will be briefly identified below.

3.3.2.2 Interactive metadiscourse resources

The interactive dimension of metadiscourse was described in the previous chapter (2.2.3) as organising discourse in relation to what the writer understands to be the reader's needs, thus allowing the writer to establish authority and credibility within the community and the text. The rhetorical features expressing this dimension in the revised model used in the analysis are transition markers, frame markers, endophoric markers and code glosses.

Transition markers "help readers interpret pragmatic connections between steps in an argument" (Hyland 2005: 50). In 2.2.3, it was explained that only transitions which link ideas can count as metadiscourse. Other transitions linking real world features such as activities, things and events are not metadiscoursal. Table 3.16 below, based on Martin and Rose (2003: 127), indicates and illustrates the ways in which ideas can be linked by means of conjunctions and adverbial phrases:

Table 3.16 Internal transitions in text

Relation	Function	Examples
Addition	introducing additional arguments	*Recognition of cerebral artery fenestrations in the context of cerebral ischaemia or stroke is important for at least three reasons: 1….. 2. …. 3. A precise diagnosis as early as possible will **also** save unnecessary costly investigations (in this patient three MRI scans) **and** guide appropriate therapy* (*BAFE*).
Comparison	comparing and contrasting claims, arguments and evidence	*Intracranial air is easily demonstrated on CT scan. **However** intracranial air is not a diagnosis in itself. It is merely a manifestation of an associated abnormality* (*IAEA*).
Consequence	drawing conclusions, providing warrants for claims and countering arguments	*No evidence of exposure to asbestos could be obtained. Contact with the mineral would**, in any case**, be most unlikely to cause this x-ray appearance in so young a patient* (*LDCA*)

It is not important whether these markers join clauses that are equal or unequal in status; rather, the crucial issue identifying a transition marker is its function to assist the reader in making connections between ideas (Hyland 2005).

Frame markers "signal text boundaries or elements of schematic text structure" (Hyland 2005: 51). In the same way as transition markers are defined as those which connect ideas rather than having a role external to the discourse, frame markers such as *first* and *then* are identified as ordering arguments in the discourse rather than events in real time. Similarly, listing must be of discourse items rather than referring to categories that arise externally to the discourse, such as the staging of cancers.

In general the function of frame markers is to frame information about text elements or to order or list discourse items. Hyland does not specify the use of bulleted points as one sort of list which can function as a frame marker. Where they occur in the corpora examined here (e.g. (17) below), I have included them as frame markers (each such list is counted as one device) since they seem to function exactly in the same way as numbers or letters in order to list points that relate to a superordinate item such as *reasons* in (16) below:

(16) Recognition of cerebral artery fenestrations in the context of cerebral ischaemia or stroke is important for at least three **reasons**:
1. It may represent the mechanism for the ischaemia or stroke.
2. Various treatment options are available which include medical, interventional radiological (Guglielmi coils)[11] and surgical options such as aneurysm clipping. The realisation that aneurysms may be part of this developmental abnormality should demand a comprehensive appraisal of the cerebral circulation by angiography.
3. A precise diagnosis as early as possible will also save unnecessary costly investigations (in this patient three MRI scans) and guide appropriate therapy (*BAFE*).

(17) **Radiological findings** noting the blood supply to the aneurysm of the case under discussion included:
- A predominant supply appeared to be via the left posterior cerebral artery
- Good filling was noted….
- Drainage was into a very dilated straight sinus…. (*AVGA*).

Frame markers also announce stages in the text, for example:

(18) **First** the patient's clinical history is discussed…. The study **then** covers various subjects brought up in the clinical history, starting by looking at acute renal failure itself and its aetiology, the treatment of the patient's renal failure and the prognosis (*ARF*)

The announcing of discourse goals or labels is also a frame marker, for example:

(19) **In conclusion** although our results were satisfactory, we hope that this rare case of primary hydatidosis of the thyroid will prove useful to justify routine use of ultrasound in the evaluation of thyroid nodules, especially where a cystic lesion is suspected (*HTGL*).

(20) **The aim of this report** is to discuss the importance of the combination of scintigraphy and ultrasonography prior to fine needle aspiration (FNA) in the diagnosis and management of swellings of the thyroid gland (*HTGL*).

(21) Recognition of cerebral artery fenestrations in the context of cerebral ischaemia or stroke is important **for at least three reasons** (*BAFE*).

Endophoric markers are used by writers to refer to material in other parts of the text. "By guiding readers through the discussion they help steer them to a preferred interpretation or reading of the discourse" (Hyland 2005: 51). This sort of expression is exemplified in the following:

(22) Artefacts may however occasionally cause a diffuse abnormality as **the following case** illustrates (*DCAR*).

(23) A skull X-ray **(Figure 1 a)** and a subsequent CT brain **(Figures 1 b and c)** were performed (*PCTU*).

In (22) the writer links the case that will follow with a statement of the point that is being made by the report, thus assisting the reader to process the discourse. In (23) the referents are radiographic images on the same page. This sort of configuration of visual and verbal material is characteristic of scientific discourse and its importance is reflected in the way text and visual material is metadiscoursally linked (Hyland 2005). A single marker may refer to more than one visual element as in (23) above.

Code glosses are the final category of interactive metadiscourse features. By predicting what additional explanatory material readers may need and providing it, the writer aims to ensure that the meaning of the text can be understood. The gloss may be a reformulation, for example:

(24) The unique radiological findings in LDD, **namely the thickened cerebellar cortex with enlarged, dysplastic folia, and the thinning of the central white matter** is well demonstrated in this case (*DGCE*)

(25) He was also stabbed in the dorsal spine and rendered paraplegic **(clinically T4 level)** (*IAEA*).

Reformulations can function as expansions (explanations, definitions and implications) or as reductions (paraphrases or specifications) of the original meaning (Hyland 2007). The example in (24) above is an expansion while (25) is a reduction. Hyland does not refer to abbreviations, for example *Lhermitte-Duclos disease (LDD)*, but in my analysis I treat them as explanations since the function of this type of code gloss is to explain that this is the abbreviation which will be used subsequently in the text.

The second major type of code gloss is exemplification, for example:

(26) Operative interhemispheric **(e.g. transcallosal)** procedures near the superior sagittal sinus may produce local trauma and stasis (*CVTH*).

The example given here provides a specific instance of the type of operative procedure mentioned by the writer.

3.3.2.3 Interactional metadiscourse resources

The interactional dimension of metadiscourse was described in 2.2.3. This sort of metadiscourse creates and responds to the relationship between writers and readers, allowing writers to present themselves as credible insiders within the discipline. The subcategories of this dimension in the revised model include evidentials, hedges, boosters, attitude markers, engagement markers and self mentions.

Evidentials, as mentioned above, are citations which indicate the source of an idea. Choosing citations appropriately can signal community membership or theoretical orientation (Latour 1987). It helps to establish the area and approach within which the writer is working (Hyland 2002a). In the current study the choice of citations from various types of sources has a demonstrable influence on the sort of credibility that is projected by the writers of the professional case reports on the one hand and the students on the other. The categorising of evidentials as an interactional device rather than an interactive one therefore seems to represents this sort of function more accurately.

Two categories used for comparing and explaining the use of evidentials are, firstly, the way the attribution is handled and then also the types of reporting verbs used. With regard to attribution, Swales (1990) distinguishes between integral and non-integral citations. Integral citations are characterised by the use of the researcher's name, followed by the date of publication in parentheses, as a syntactically functioning element of the sentence, shown in the constructed example provided in (27) below, while non-integral citations have the researcher's name in parentheses with the date, as in (28), or refer to all the bibliographic information elsewhere by means of superscript numbers, as in (29):

(27) Simon (1971) shows that tuberculosis rheumatoid pleurisy is one cause of linear diaphragmatic calcification.

(28) Tuberculosis rheumatoid pleurisy is one cause of linear diaphragmatic calcification (Simon 1971).

(29) Tuberculosis rheumatoid pleurisy is one cause of linear diaphragmatic calcification.[1]

Another usage not mentioned by Swales but which occurs in the radiology case reports is the use of an integral citation together with a superscript number (see 4.6.1.3), for example:

(30) Simon[1] cites tuberculosis rheumatoid pleurisy and haemothorax following trauma, as well as asbestos exposure, as possible causes of linear diaphragmatic calcification (*LDCA).*

The choice of an integral or non-integral citation can be functional. Thus an integral citation places focus on the author, the author's work or the actual test which is cited and a non-integral citation takes the emphasis from these, focusing rather on the proposition (Thompson 2005).

Citations may be reporting, as in (27) and (30), or non-reporting, exemplified in (28) and (29) above. The use of reporting verbs allows writers to signal their level of commitment to the claims or findings they are reporting. In (30) the verb *cite* appears to signal less than full commitment to Simon's finding. This is classified as a hedge, as discussed below, and contrasts with the use of *show* in (27), where the booster expresses certainty and commitment.

Hedges and boosters have been mentioned in the discussion on evidentials above. They are epistemic devices used to indicate to the reader the degree of certainly or uncertainty the writer wishes to ascribe to a position, allowing the writer to handle knowledge claims so as to indicate the level of commitment to propositions while at the same time taking into account the views of the reader. Hedges mitigate propositions, indicating that the writer recognises the possibility that the reader may have alternative viewpoints; boosters, on the other hand, present the writer as authoritative and suggest solidarity and engagement with the reader (Clemen 1997; Hyland 1998a, 1998c; Meyer 1997; Myers 1989).

Boosters do not only take the form of verbs but are frequently adjectival or adverbial, as exemplified in the following:

(31) Close examination of the image **will always show** that the abnormality bears no relationship to the basic anatomy of the brain or cranium (*IAEA*).

(32) MR Angiography or Venography provides **conclusive** evidence of flow in the sinus rather than relying on flow-related enhancement effects in standard imaging (*CVTH*).

(33) They are **invariably** unilateral in distribution and common in males between the second and fourth decades (*SPOL*).

With regard to hedging in the metadiscourse analysis in Chapter 4, Hyland's (1998c) categories of content- and reader-oriented hedges are used for comparison across the corpora. The first type, content-oriented hedges, "hedge the correspondence between what the writer says about the world and what the world is thought to be like" (Hyland 1998c:

162). If the hedges are primarily motivated by a need to convey propositions as accurately as possible, they are categorised as accuracy-oriented hedges, for example:

(34) Several patients are known to have died abruptly, **possibly** due to acute decompensation of chronic hydrocephalus (*DGCE*).

(35) Emergency laparotomy revealed a large pelvic soft tissue mass occupying **most** of the pelvic cavity (*PHPE*)

If the motivation is to limit personal commitment by the writer, it is referred to as a writer-oriented hedge, for example:

(36) **It is hoped** that the case described, together with the other causes mentioned, will serve to highlight the phenomenon of diffuse cerebral artefact (*DCAR*).

The second type, reader-oriented hedges, are concerned with the interpersonal relationship between writer and reader and with seeking acceptance of claims based on this relationship rather than on more objective grounds, for example:

(37) **To our knowledge**, complete thrombosis of the Vein of Galen Malformation following endovascular treatment with lack of any complications has not previously been reported in the South African literature (*VGMA*).

The lexicogrammatical features used in hedging are also in Chapter 4 compared across the categories established by Hyland (1998c), namely, lexical verbs, modal verbs and epistemic adjectives, adverbs and nouns.

Attitude markers have the role of expressing positive or negative attitudes to propositions (Hyland 2005). These are affective rather than epistemic attitudes, the latter being signalled by evidentials. Although academic writing, and in particular scientific writing, is characterised by objectivity, this is not achieved by simply avoiding the marking of attitude, although the type of attitudinal lexis used tends to be evaluations of phenomena and so be directed towards an institutional rather than a personal framework (Hood 2004; Martin 2000a). Affective attitude is explicitly signalled by attitude verbs, exemplified in (38) below, sentence adverbs, such as in (39), and adjectives, such as in (40):

(38) It **is hoped** that the case described, together with the other causes mentioned, will serve to highlight the phenomenon of diffuse cerebral artefact (*IAEA*).

(39) **Unfortunately**, since paralysed and innervated muscles have been abnformal since before birth, relapse is common (*SBI*).

(40) Imaging is **critical** to the diagnosis of disorder, which can be made by non-ivasive modalities such as CT or MR (*CVTH*).

Attitude markers appeal to readers by claiming solidarity with them and also by suggesting a suitable response from them to the text (Hyland 2005).

Self mention refers, as the name suggests, to self-representation of the writer in the text. While all discourse gives an impression of the writer, the choice whether to explicitly include author reference or not allows writers to promote a particular identity within their discourse communities (Hyland 2005). The most important means of self-representation in a text is by means of using the first person (Ivanič 1995), for example:

(41) **We** feel that the reason for this discrepancy is that at **our** centre **we** analyze the case during both dynamic and static phases (*HTGL*).

Self mention has an important role in research writing "in mediating the relationship between writers' arguments and their discourse communities, allowing writers to create an identity as both disciplinary servant and persuasive originator" (Hyland 2001: 223).

Engagement markers are rhetorical devices that draw readers into texts as participants. This happens either by addressing the readers directly or by positioning and guiding them towards taking on particular attitudes and interpretations through the use of questions, directives and references to shared knowledge (Hyland 2004d). Examples include the use of the inclusive first person pronoun and necessity modals, for example:

(42) Perhaps **we should** revise **our** interpretation of linear diaphragmatic calcification seen on the chest x-ray (*DCAR*).

3.3.2.4 Applying the metadiscourse analysis

The framework outlined above is used to analyse and discuss the metadiscourse functions in the professional case reports as reported in Chapter 4. The aim of the analysis is to establish what insight might be provided for the sort of identity the writers are portraying. A comparison between the realisation of metadiscourse described by Hyland for a corpus of research articles (Hyland 1998d, 2005) and that described for this corpus of professional radiology case reports was initially undertaken to suggest what metadiscourse use might be characteristic of the medical case report. The results for biology were selected from the eight disciplines investigated by Hyland for this comparison because it is the closest to that of medicine. Due to space constraints these findings are not reported on in any detail but will be referred to where useful.

The corpora are small enough to allow for the manual examination of the texts and for instances of metadiscourse to be identified in context. The frequency information is presented both in the form of raw scores and per 1 000 words to allow for comparisons between the two corpora used in this study, which comprise different numbers of words. The indication of frequency of metadiscourse as a proportion of words is a measure of occurrence and not of the proportion of text which is taken up by metadiscourse (Hyland 1998d).

With regard to the use of frequency data, Hyland (2004a: 141) points out that there is "no clearly reliable way of demonstrating significance." This is not necessarily a drawback because, as he goes on to argue:

> discourse analysts are often less interested in establishing detailed non-parametric comparisons than in discovering broad distributional differences of items between groups. Frequencies are thus used as a springboard to more qualitative study, using the quantitative finding as a basis for characterising broad similarities and differences in the genres produced by particular communities (Hyland 2004a: 141).

In addition to a comparison between frequencies of categories and subcategories as outlined above, the particular strategies that are chosen by the writers in the various subcategories are described, drawing on other work by Hyland (1998a, 1998c, 1999a, 1999b, 2001, 2002c, 2002e, 2004a, 2004c, 2007) and the patterns of use in the professional and student corpora compared. Work by sociologists and others on the language of medical reporting also provides a context in terms of which discourse features may be understood and explained. The writer identity that is revealed in this way forms a benchmark for the description of the *ethos* and the persona adopted by student writers.

3.4 SUMMARY AND CONCLUSION

The model described in this chapter brings together a number of different analyses within a single framework in order to explore issues of writer identity in two corpora of case reports in the field of radiology. This particular genre has not previously been described.

A social view of writing allows the linking of the notion of identity with that of purpose and context. The writer is viewed as a rhetorically constituted member of a community and community goals are accomplished through appropriate genres. Identity is therefore operationalised in this study at a macro-level in terms of genre choice. At a micro-level,

writer identity is explored in terms of relationship between writer and reader signalled metadiscoursally in texts.

The various levels of analysis described in this chapter include that of both social and cognitive genre (linked to the context of culture), lexicogrammar (linked to the context of situation and here primarily used to suggest boundaries of genre stages) and metadiscourse (a micro-level analysis of explicit signals in text of writer attitude). The notion of genre and that of metadiscourse provide two dimensions of analysis in the study and the consequent findings will be discussed in the following chapter.

CHAPTER 4

ASPECTS OF WRITER IDENTITY IN RADIOLOGY CASE REPORTS

4.0 INTRODUCTION

This chapter explores the nature of writer identity in medical case reports in the specialty of radiology, seeking to answer the research questions posed in Chapter 1 and repeated in Chapter 3.

To answer these questions, two levels of analysis are used, namely the macro-level of genre and the micro-level of metadiscourse analysis, as explained in 4.1. Because the analyses are carried out on two corpora consisting of medical case reports, this genre is briefly introduced in terms of its relationship with other medical genres (4.2). First to be examined is a corpus of professional case reports that subsequently provides a benchmark for a discussion of a corpus of student reports. The analysis establishes the genre structure of the radiology case report, using lexicogrammatical features to support the move analysis, and describes the prototypical moves and text types found in the different sections (4.3). With this structure as a benchmark, the case reports produced by students are then examined to provide insights into the sort of identity that is necessary to produce a successful report and to what extent the writers have succeeded in taking on a professional identity (4.4). In order that a detailed picture of the discourse practices involved might be provided, a close comparison is then made between single examples of a paper from each corpus (4.5). At a micro-level, the metadiscoursal features of the professional case report are described and compared with those used by student writers (4.6). Finally, the findings regarding writer identity, as realised through both genre and metadiscourse, are summarised and discussed (4.7).

These findings constitute the longest chapter of the thesis because of the need to use a substantial amount of illustrative material that seemed more appropriate to include here rather than elsewhere in the thesis. It has also proved useful to make some reference, though this is necessarily limited in this study with its particular focus on radiology writing, to comparisons with patterns of language found in the genre of the research article, where this could provide insight into writer purpose and identity in the case report. Although this

chapter could have been divided into two, it appeared best to retain the integrity of a single chapter for the findings, operating together as they do to form the basis of conclusions regarding writer purpose and identity.

4.1 IDENTITY IN DISCOURSE

This study of academic and professional writing as exemplified in the medical case report is located in a social view of language and focuses on writer identity as revealed by purpose in writing. Grabe and Kaplan (1996) have proposed that the functional category of purpose should be addressed on at least two levels:

> On a general level, the overt purpose is related to the concept of genre; the 'purpose' influences the text structure itself, selecting appropriate genre options. However, the parameter of 'purpose', as used here, also addresses functional issues which are independent of recognized written genres (Grabe and Kaplan 1996: 210).

The two levels of analysis in the study, as indicated in the model discussed in Chapter 1, account for purpose, firstly, at a macro-level, in terms of genre structure, which indicates an identity linked with the notion of community and realised in the choice of a particular genre to achieve culturally defined and socially recognised purposes, and, secondly, at a micro-level, in terms of metadiscourse choices, which achieve persuasive objectives in text through the establishing of writer identity in relation to the reader.

In terms of the macro-level analysis, the genre of the case report, like all genres, is situated in a community that produces and processes such texts and, according to the systemic functional theory of language, genre structure provides a way of expressing the context of culture (see 2.2.2.2). Genre is thus theorised as being part of a system of levels of context. The other levels of context, namely the context of situation (expressed by means of the lexicogrammar) and ideology, are in turn realised by or realise genre (Eggins 1994, Martin 1992) and the exploration of identity in the case reports in this chapter involves reference to these strata of analysis as well. Because community members differ in terms of expertise and because novices must also learn to project the shared context and to make use of conventional genre structures to accomplish socially recognised purposes within the community (Jolliffe and Brier 1988), this approach provides a powerful theoretical basis for exploring student writing within a discourse community by means of a linguistic analysis.

The second approach to exploring the professional and academic identity of case report

writers is by means of the micro-level analysis of social interactions between the writer and the assumed reader that are made explicit in text, namely, a rhetorical analysis by means of metadiscourse features in the texts. The interactions which are central to the notion of metadiscourse also have a persuasive purpose but, although they can be linked with the concept of the discourse community (Hyland 2002e, Ivanič 1998), they differ from genre, which refers to a culturally recognised category of texts defined in terms of their social purposes (Eggins and Martin 1997). Metadiscourse analysis is a rhetorical tool which focuses on the attitude of the writer towards the content and the audience of the text and thus provides an important insight into writer identity.

Although metadiscourse is not necessarily constrained by genre choice, the discursive space provided by the discourse community is fundamental to the establishment of a professional and academic identity. Hyland (2005: 141), in his account of the importance of community in studies of academic writing, clearly shows the links between genre and disciplinary identity, observing that "community constraints on discourse both restrict how something can be said and authorize the writer as someone competent to say it." In the sections that follow, the discussion of both genre structure and metadiscoursal choices is framed within the concept of the disciplinary community.

4.2 THE GENRE OF THE CASE REPORT IN MEDICAL WRITING

The medical case report is a well recognised genre structure, which is used to achieve clearly established communicative purposes in the field (Hunter 1991, 1996; Huth 1990; Salager-Meyer 1991; Skelton 1997; Taavitsainen and Pahta 2000) but which has not previously been the central focus of a linguistic study, apart from a short diachronic study of stylistic features of the case report (Taavitsainen and Pahta 2000). While the paradigmatic text for the production of medical knowledge is the research article, which as such has been the subject of one important stream of research on medical discourse (the other being the medical interview), work in the sociology of medical knowledge has suggested the importance also of medical talk amongst doctors and of case presentations, both oral and written, as a site of knowledge construction. The focus here is on the single case as opposed to the scientific report, the latter based on generalisable studies of clinical trials and experimental data. The case report, as published in medical journals, is "a scientific account of a single instance of human illness [and] reflects the mixed methodology of medical knowledge" (Hunter 1991: 94).

The report shares the communicative functions of other medical genres. Vihla (1999) has suggested a classification of medical texts that includes argumentative and directive functions. The former would be exemplified by research articles and the latter by scientific textbooks (aimed at introducing concepts and information to novices), clinical textbooks (aimed at providing practical information to advanced students and professionals) and handbooks (which present summaries of relevant information for use by practitioners). The hybrid case report genre shows, in addition to narrative, features of both argumentative and directive types of writing. Because the goal of the report is to add to clinical knowledge in the field, there is a need in the introduction and discussion sections to convince the reader that there is a gap which needs to be addressed. It may be noted that Huth (1990), in his handbook for clinicians on writing papers for publication, advocates giving as much attention to elements of critical argument in case reports as in research articles. The discussion section of the reports generally presents accepted information regarding the particular pathology or its management and shares the communicative function of genres that are characterised as directive writing. The central narrative section of the case report presents the career of a single patient or case. The case report as a genre can also be seen as part of a chain (Candlin and Sarangi 2004; Swales 2004), linked with the written genre of case notes on the one hand and, on the other, the oral genre of the case presentation at ward rounds and reviews (Atkinson 1995).

The capturing of a single medical case in written form takes place first then as case notes, also known as the medical record, a genre that has been discussed by researchers from a sociological perspective (e.g. Hunter 1991; Raffel 1979). It is in this form that the patient's medical history is recorded. The medical history includes the symptoms which brought the patient to the doctor or to the hospital, the results of tests and a record of therapies and treatment. In the student case reports that are examined in this study, the intertextual presence of these records is often very evident. While not every medical record is considered worth retelling in written case presentations, it is this record that forms the basis of every professional case report. Published case reports are now confined to unusual cases, unusual presentations of common cases or common cases not previously reported in the literature (BioMed Central 2007; Hunter 1991; Huth 1990). The reports mostly concern one individual, although occasionally more than one case may be described. The case of disease or injury is described "from the onset of symptoms to the outcome, usually either recovery or death. The background and a commentary on the disease are also given…. Often a limited review of the literature is added and the number of known cases stated" (Taavitsainen and Pahta 2000: 60-61).

The way the genre unfolds, as described above, also realises ideology. Thus the genre of the case report indicates its clinical purpose, making implicit claims about clinical knowledge as narratively constructed and learned, "a practical body of knowledge brought to bear on the understanding and treatment of particular cases" (Hunter 1991: xviii). This, Hunter argues, is inductive and interpretive knowledge focusing on the individual and stands in contrast to the ideology realised in research articles which aligns medicine with science.

The particular medical case reports in the professional corpus under investigation in this study focus on the diagnosis and management of a pathology by means of radiological techniques.

4.3 STRUCTURE OF THE GENRE AS EVIDENCED IN THE CORPUS OF PROFESSIONAL RADIOLOGY CASE REPORTS

In order to establish how the purposes of the genre of medical case reports, as exemplified in the professional radiology corpus, are achieved and in this way to gain insight into the social identity of the professional writer, the identifiable segments, or moves, in the texts are first identified (4.3.1). The way in which a research space is created for the writer in the professional case reports is then discussed (4.3.2), before a detailed description of moves and other patterns in each section of the case report is provided (4.3.3) and finally the abstract in the case report briefly discussed (4.3.4).

4.3.1 Identification of moves in the professional case report

The case reports that constitute the professional corpus are often divided by the authors into sections by means of the conventional headings, namely Introduction, Case Report (referring to the case presentation section of the report), Discussion and, sometimes, Conclusion. The division of a case report into these named sections, representing the cognitive macrostructure of the text (Salager-Meyer 1990; Van Dijk 1980), does not go far enough to capture the purpose-oriented stages through which such a text develops nor all the lexicogrammatical differences identifiable in the various stages. Henry and Roseberry (2001b), with reference to a different genre, make the same point, showing how each section of the research article identified by the conventional section headings actually comprises several moves that are distinguished by means of different patterns of language. Nevertheless, the sections conventionally found in the case report do play an important function and may be distinguished in terms of the text types that constitute them (see 4.3.3).

One of these sections is the introduction and this particular section of academic research texts has been the subject of wide research across various disciplines and can be seen as constituting a genre colony (Bhatia 2004).

An analysis of the corpus suggests that in a typical radiological case report the writer moves through the functions or moves set out in Table 4.1 below:

Table 4.1 Moves and their rhetorical functions in professional radiology case reports

	Rhetorical function	Section
1	*Establishing territory* (by providing well established background information)	Introduction
2	*Establishing niche* (by suggesting a gap in clinical knowledge or problems with previous diagnostic practice)	
3	*Presenting present work* (by introducing the case and report)	
4	*Reporting problem* (by narrating the story of the patient with regard to the medical problems that were presented)	Case report
5	*Reporting investigation of problem* (by detailing the investigations of the medical team leading to a diagnosis)	
6	*Reporting response to problem* (by describing the management of the patient including the prognosis)	
7	*Evaluating response* (by describing the situation after this intervention)	
8	*Re-establishing territory* (by referring to well established information about the condition)	Discussion
9	*Re-establishing niche* (by establishing the fact that the pathology or the case report has some significance for clinical medicine)	
10	*Discussing problem* (by summarising relevant research on the pathology with reference to the case)	
11	*Discussing response to problem* (by summarising relevant research on management of the condition with reference to the case)	
12	*Stating conclusions* (by reiterating aspects of the report or providing recommendations)	

Each of these twelve moves is well represented in the corpus, as demonstrated in Table 4.2. Drawing boundaries between moves is necessarily subjective because the genre approach is based on an interpretation of content and its varying functions, as outlined in 3.3.1.1. In this discussion, it was also pointed out that linguistic regularities can function as a helpful tool in arriving at such analyses, although functional criteria are treated as primary. Where linguistic forms and patterns are used to signal aspects of functional values and assist in drawing boundaries between moves, this will be commented on in the discussion of the moves in 4.3.3.

Swales (2004: 228) emphasises the status of the move as "a discoursal or rhetorical unit that performs a coherent function in a written or spoken discourse". He indicates that the move cannot be associated with any particular grammatical or orthographic unit since it can be realised by any stretch of discourse, from the clause, on the one hand, to several sentences, on the other. This flexibility is confirmed by the analysis of the radiology corpus

in this study. There are, however, also a few instances in which the purposes associated with two different moves are combined in one clause, as discussed in 3.3.1.1. Ordering and stability of moves are referred to in the discussion of each section of the reports, following Skelton's (1994) criteria for move stability, as outlined in 3.3.1.1.

The occurrence of moves in each case report is indicated in Table 4.2 below. Gaps left in the table for a particular report indicate that there is no introduction section at all in that report. The aggregated occurrence of each move for those reports that have an introduction section is also indicated. All other sections appear to be compulsory, and for these and the introductions that occur, the presence or absence of a particular move within that section is indicated by the symbols + or - respectively. For the purposes of this table the second case reported on in *PCTU* (in which Move 7 does not occur) is omitted.

Table 4.2 Distribution of moves in professional case reports

Report \ Move	Introduction			Case presentation				Discussion				
	1	2	3	4	5	6	7	8	9	10	11	12
AVGA				+	+	+	-	+	+	+	+	-
BAFE	+	-	-	+	+	+	+	-	+	+	+	-
DBCY				+	+	+	+	+	+	+	+	-
CTOR	+	+	+	+	+	+	+	-	+	+	+	+
PCTU	+	+	+	+	+	+	+	+	+	+	+	+
CVTH	+	+	-	+	+	+	-	+	+	+	+	-
DCAR	+	+	+	+	+	+	-	-	-	+	-	+
DGCE				+	+	-	-	-	+	+	+	+
FBRE				+	+	-	-	+	+	+	+	-
GFIS	+	+	+	+	+	+	+	+	+	+	+	-
HTGL	+	+	+	+	+	+	+	-	+	+	-	+
IAEA	+	+	-	+	+	-	-	+	+	+	-	+
LDCA	+	+	+	+	+	+	+	-	+	+	-	+
ENPC				+	+	+	+	-	+	+	+	-
PHPE				+	+	+	+	-	+	+	+	-
RRAA	-	+	+	+	+	+	+	+	+	+	+	+
SPOL				+	+	+	+	+	+	+	+	-
SSRH				+	+	+	+	-	+	+	+	+
TICA	+	+	+	+	+	-	-	+	+	+	-	+
VGMA				+	+	+	+	-	+	+	+	+
Total %	50	50	40	100	100	80	65	55	95	100	75	55
with Introduction	91	91	73									

Nwogu (1997: 124), in his study of a corpus of 15 medical research papers, referred to in section 3.3.1.1, classifies moves that occur in all or all but one of the articles as "normally required moves". As can be seen in the table above, only four of the moves (Moves 4, 5, 9

and 10) would qualify as normally required moves by this classification. These particular moves generally unfold the story of a patient with a particular medical condition and how the condition was diagnosed and treated, followed by a more general discussion of the condition. The discussion is introduced by means of a claim regarding the significance of the report for clinical medicine. Thus the case presentation and discussion sections are always included, while the introduction section and the concluding moves of the discussion are quite frequently omitted. This contrasts with the situation with regard to the medical research article, as indicated in Nwogu's (1997) corpus, where introductory and concluding moves are among the normally required moves of the genre. This will be taken up and briefly discussed in relation to the function of the abstract in 4.3.4.

In order to illustrate the professional case report, a short example of a report (*CTOR*) is provided in Table 4.3 below. This report illustrates most of the moves listed in Table 4.1, while showing how their ordering may differ from the prototypical pattern. In the case presentation section, because of the nature of the case presented in Move 4, emergency treatment is instituted for a wound to the chest (Move 6) before the normal investigations take place (Move 5). Further treatment follows in terms of what these investigations have revealed (Move 6). A new problem then occurs, namely, the cardiac torsion which is the actual focus of the report, and the cycle begins again (Move 4, 5 and 6), ending with an evaluation of the solution to the problem (Move 7). Later in the report, in the course of the discussion of how the condition is managed (Move 11), the writer returns briefly to a description of causes of the condition (Move 10). The abstract that accompanies the case report in the original text is not included in the table.

Table 4.3 Example of professional case report showing move structure (*CTOR*)

CARDIAC TORSION: A CASE REPORT AND REVIEW (*CTOR*)

INTRODUCTION	
MOVE 2 *Establishing niche*	***Introduction*** The high mortality related to cardiac herniation and its extreme form of cardiac volvulus necessitates awareness of this condition. Clinical signs are often non-specific, including intense chest pain, shock and cardiac arrest, usually in the early post operative period.[1] The mortality is ±50% when recognised and 100% if not recognised.[2,3] Radiological confirmation allows emergent treatment but the condition is seldom documented radiologically because it requires prompt surgical treatment.[1]
MOVE 3 *Presenting present work*	This case report illustrates a case of cardiac volvulus which was clearly evident radiologically.
CASE PRESENTATION	
MOVE 4 *Reporting problem*	***Case report*** A 28-year old male sustained a gunshot wound to the right chest, traversing the right hemithorax and dorsal spine, resulting in a right haemothorax, as well as a spinal cord injury.
MOVE 6 *Reporting response to problem*	Emergency room resuscitation was performed and an intercostal drain was placed in the right hemithorax.

MOVE 5 *Reporting investigation of problem*	Chest x-ray revealed right basal veiling with pleural and parenchymal changes. It was obvious that significant bleeding was occurring in the right chest, sufficient for right thoracotomy and exploration. A right posterolateral thoracotomy was performed and the pleural space entered above the sixth rib. A large right haemothorax was evident. Active bleeding from the right superior pulmonary vein was evident
MOVE 6 *Reporting response to problem*	which was controlled by digital pressure. The pericardium was opened anterior to the right phrenic nerve. The superior pulmonary vein was clamped intrapericardially ensuring proximal control. A nick in the right pulmonary artery was also bleeding actively and was clamped to gain control. A pneumonectomy was performed with ligation of the superior and inferior pulmonary veins and pulmonary artery. The right main bronchus was divided and stapled closed. Haemostasis was secured and a single intercostal drain placed in situ. The pericardium was closed with continuous vicryl suture leaving an approximately 2.5 cm pericardial window for pericardial drainage.
MOVE 4 *Reporting problem*	At 28 hours postoperatively, the patient developed acute hypotension.
MOVE 5 *Reporting investigation of problem*	An immediate chest x-ray revealed cardiac torsion (Figure 1). Emergent operative intervention confirmed the cardiac volvulus and revealed a large dehiscent pericardium with sutural dehiscence,
MOVE 6 *Reporting response to problem*	which was corrected.
MOVE 7 *Evaluating response*	However, over the ensuing days, the patient developed a classical adult respiratory distress syndrome and despite advanced life support, demised 12 days after injury.
DISCUSSION	
MOVE 9 *Re-establishing niche*	***Discussion*** Cardiac herniation and subsequent torsion is rare and subsequently fatal if unrecognised.
MOVE 10 *Discussing problem*	Most are postsurgical, but cardiac herniation through congenital pericardial defects has been described.[4] Blunt chest wall trauma with pericardial rupture and subsequent torsion has also been described.[5] The physiological effect of cardiac torsion is dependent on the nature of the cardiac malrotation. If there is a right sided herniation, decreased cardiac output due to obstructed venous return is the pathogenesis - superior vena caval obstruction occurs. [6] This was the case in our patient. If left sided herniation occurs, strangulation of the ventricular walls by the edges of the pericardial sac causes hypotension.[7] This can be complicated by coronary artery compression, myocardial injury, ischaemia and arrythmias.[8] With left sided herniation, organoaxial torsion occurs and the apex of the heart points to the left posterior costophrenic recess. Clinically the apex of the heart is directed posteriorly with electrocardiogram changes demonstrating the cardiac rotation. Typical radiological findings are seen, including: • An absent normal left sided cardiac silhouette. A triangular or spherical soft tissue density representing the cardiac mass, projects from the right hilum into the lower hemithorax. The mass is solid with no air bronchograms. This has been termed the snow cone sign.[9] The empty pericardial space may be filled with air. • A notch on the right side of the cardiovascular pedicle is seen in right sided herniations. This sign is clearly illustrated in Figure 1. • Chest tube position can be altered due to displacement by the malpositioned heart. • Indentation of the bulging ventricles by the constricted pericardium is rare. The older literature notes that all cardiac torsions occur within 24 hours postpneumonectomy. [0] Delayed torsions are rare, postulated due to adhesions between heart and pericardium which are noted to develop within three days of surgery.
MOVE 11 *Discussing response to problem*	Small pericardial defects close to the hilum are often left open to avoid tamponade. If the defects are large, the options available are: On the left, the pericardium is opened down to the diaphragm, which does not prevent herniation but cardiac strangulation or infarction is less likely.[11] On the right side, the pericardium must be closed, either by suturing the bare edges of the pericardium to the epicardium,[12] or patching the defect with parietal pleura[13] or fascia lata.[14] Dacron patching is complicated by sepsis, limiting its use.
MOVE 10 *Discussing problem*	Aggravating circumstances predisposing to postpneumonectomy cardiac volvulus are postulated and include: A large vacant pneumonectomy space, negative suction on chest drains, coughing, positive pressure inflation of the contralateral remaining lung, and changes in the patient's position. Herniation can occur regardless of the size of the pericardial defect.
MOVE 12 *Stating conclusions*	This case report illustrates early sutural dehiscence postpneumonectomy accounting for the pericardial defect and the subsequent complication of right sided cardiac volvulus with its dramatic radiological signs.

Many of the moves identified in Table 4.3 above can be represented as a series of steps

(the status of steps is discussed in 3.3.1.1). Each of the steps within one move contributes to one communicative purpose. For example, Move 10 has the overall purpose of summarising the research in the literature concerning the pathology; within this move, however, are steps, each of which accounts for a different aspect of this research. Prototypically, the steps in this move are as follows:

Step 1: *Presenting background information*
Step 2: *Presenting account of aetiopathogenesis* (i.e. a description of the causes of the pathology and their operations and mechanisms)
Step 3: *Presenting account of clinical findings*;
Step 4: *Presenting account of radiological findings*.
Step 5: *Presenting account of histological findings*
Step 6: *Presenting account of sequelae/complications*.

The particular instance of Move 10 in the case report reproduced in Table 4.3 does not choose all the possible steps, as revealed in Table 4.4 below:

Table 4.4 Example of steps in Move 10 (*CTOR)*

CARDIAC TORSION: MOVE 10

STEP 2 *Presenting account of aetiopathogenesis*	Most are postsurgical, but cardiac herniation through congenital pericardial defects has been described.[4] Blunt chest wall trauma with pericardial rupture and subsequent torsion has also been described.[5] The physiological effect of cardiac torsion is dependent on the nature of the cardiac malrotation. If there is a right sided herniation, decreased cardiac output due to obstructed venous return is the pathogenesis - superior vena caval obstruction occurs.[6] This was the case in our patient. If left sided herniation occurs, strangulation of the ventricular walls by the edges of the pericardial sac causes hypotension.[7] This can be complicated by coronary artery compression, myocardial injury, ischaemia and arrythmias.[8] With left sided herniation, organoaxial torsion occurs and the apex of the heart points to the left posterior costophrenic recess.
STEP 3 *Presenting account of clinical findings*	Clinically the apex of the heart is directed posteriorly with electrocardiogram changes demonstrating the cardiac rotation.
STEP 4 *Presenting account of radiological findings*	Typical radiological findings are seen, including: • An absent normal left sided cardiac silhouette. A triangular or spherical soft tissue density representing the cardiac mass, projects from the right hilum into the lower hemithorax. The mass is solid with no air bronchograms. This has been termed the snow cone sign.[9] The empty pericardial space may be filled with air. • A notch on the right side of the cardiovascular pedicle is seen in right sided herniations. This sign is clearly illustrated in Figure 1. • Chest tube position can be altered due to displacement by the malpositioned heart. • Indentation of the bulging ventricles by the constricted pericardium is rare.
STEP 2 *Presenting account of aetiopathogenesis*	The older literature notes that all cardiac torsions occur within 24 hours postpneumonectomy.[10] Delayed torsions are rare, postulated due to adhesions between heart and pericardium which are noted to develop within three days of surgery.… Aggravating circumstances predisposing to postpneumonectomy cardiac volvulus are postulated and include: A large vacant pneumonectomy space, negative suction on chest drains, coughing, positive pressure inflation of the contralateral remaining lung, and changes in the patient's position. Herniation can occur regardless of the size of the pericardial defect.

4.3.2 Establishing research space in the professional case report

That a three-move introduction is prototypical in journal articles across a number of fields has been generally accepted (Swales 2004) and the move structure of the introductions in the radiology case reports follows the same general pattern, the moves developing in such a way as to provide the reader with "a carefully modulated orientation…of what is to come, broadly proceeding in the direction of greater specificity" (Swales 2004: 226).

Swales has attempted to indicate strongly the social purposes of the writer in his choice of nomenclature for the moves. He shows that the introduction of a research article situates the writer's work within the field by establishing a niche in the face of competition from other members of the discourse community (Swales 1990). The fact that the presence of an introduction in the radiology case reports is not obligatory (nine of the 20 case reports have no introduction) seems to suggest that there is perhaps less need for such an effort to compete for research space in the field of clinical practice than in that of academic medicine and less need to claim originality. This could be seen as indicating that the rhetorical work carried out by the introduction is not as "ecologically" significant in the case reports as is suggested for the introduction of the research article in Swales's (1990) Create-a-Research-Space (CARS) model.

However, the very fact that case reports are now seen as less central to the field of medicine should be a reason to require the author of a case report to establish very clear evidence of significance. Case reports are usually published in journals alongside research articles and are thus to some extent in competition for space. There is, in fact, another move which, in addition to the moves in the introduction, has an important role in establishing the claim of a case report to be a novel contribution. This is Move 9: (*Re)-establishing niche*, which, together with Move 8: (*Re)-establishing territory,* introduces the discussion section (see Table 4.1). The distribution of moves which function to establish a rationale for the report across both the introduction and the discussion sections of the reports in the corpus is indicated in Table 4.5 below:

Table 4.5 Moves in the corpus of professional case reports indicating rationale for the report

Move	AVGA	BAFE	DBCY	CTOR	PCTU	CVTH	DCAR	DGCE	FBRE	GFIS	HTGL	IAEA	LDCA	ENPC	PHPY	RRAA	SPOL	SSRH	TICA	VGMA	Total %
2				+	+	+	+			+	+	+	+			+			+		50
9	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	95

As can be seen from the table, Move 9, which indicates the significance of the pathology for clinical medicine, occurs in 95% of the corpus. In a number of these reports, and importantly in *DCAR* (the single report in which Move 9 does not appear), the writer has already indicated in the introduction the niche which the report claims to fill. Thus each report, without exception, indicates the significance of the study by means of at least one and frequently both of these possible moves.

It can be concluded that the writers of the radiology case reports are indeed required to "create a research space" for their contributions to clinical knowledge, even though this is not limited to the introduction proper, as it is in the research article. It therefore seems useful to adopt Swales's nomenclature for the various introductory moves so that comparisons can be made across different fields and a level of generality achieved which could extend beyond this particular corpus. The role of abstracts in regard to establishing a research space will be touched on in 4.3.4. The terminology chosen for labelling the moves in the case presentation section reflects the fact that the case report contains the well established Problem-Solution discourse pattern (Hoey 1994, 2001) and the General-Particular pattern (Hoey 1983), also called the recount or report text type (Bruce 2008a; Veel 1998). These patterns will be discussed in 4.3.3. The labelling of the moves in the discussion section is also intended to mirror the patterns found in the introductory moves and the case presentation moves.

4.3.3 Description of moves and related patterns in the professional case report

Here I describe the moves and steps in each section of the case report in turn and present a rationale for the analysis, including reference to the lexicogrammatical patterns that characterise each. Where text type patterns assist in establishing the nature of a move or its boundaries, these are also described. The status of each of the various moves, as established by frequency of occurrence and order stability, is discussed. Having first identified moves in the introduction section in relation to those proposed by Swales for research articles (4.3.3.1), I then describe the case presentation section in terms of text type (4.3.3.2) and moves (4.3.3.3) and subsequently identify moves in the discussion and conclusion section, together with examples of relevant text types, (4.3.3.4).

4.3.3.1 Moves in the introduction section

The CARS model for research article introductions originally proposed by Swales (1990),

and reproduced in this thesis in Figure 2.5, was revised by him subsequent to its application by various researchers to texts in a range of disciplines (Swales 2004). This later model also accounts adequately for the moves found in the introductions of the case reports in the radiology corpus, although the steps within the moves differ in some respects. I will compare the analyses of introductions in the two genres, set out below, before going on to discuss briefly in turn each move found in the radiology introductions.

The proposed analysis (Figure 4.2 below) may be compared with Swales's (2004) model (reproduced alongside it as Figure 4.1). This comparison indicates that the case report is a more compact genre than the research article and suggests that some of the differences between the two genres may be due to the desire of the writer to be concise.

Move 1:	**Establishing a territory**
	via
	Topic generalizations of increasing specificity
Move 2:	**Establishing a niche**
	via
Step 1A:	Indicating a gap
	or
Step 1B:	Adding to what is known
Step 2 *(optional)*:	Presenting positive justification
Move 3:	**Presenting the present work**
	via
Step 1:	Announcing present research descriptively and/or purposively
Step 2 *(optional):*	Presenting RQs or hypotheses
Step 3 *(optional):*	Definitional clarifications
Step 4 *(optional):*	Summarizing methods
Step 5*:	Announcing principal findings
Step 6*:	Stating the value of the present research
Step 7*:	Outlining the structure of the paper

*Probable in some fields but unlikely in others

Figure 4.1 Moves and steps in the CARS Model for the research article introduction (Swales 2004: 230-232)

Move 1:	**Establishing territory**
	via
	Presenting established background information
Move 2:	**Establishing niche**
	via
Step 1:	Indicating a gap in clinical knowledge
	and/or
Step 2:	Indicating problems with diagnosis
Move 3:	**Presenting present work**
	via
Step 1A:	Announcing present work descriptively
	or
Step 1B:	Announcing present work purposively
	and/or
Step 2:	Announcing report contents or structure

Figure 4.2 Moves and steps in the introduction of professional case reports

In the earlier CARS model (see 2.3.3), Swales distinguished within Move 1 between three separate steps, namely, *Claiming centrality*, *Making topic generalisations* and *Reviewing items of previous research*. These distinctions are difficult to justify (Samraj 2002a; Swales 2004) and, in his later discussion of the model, Swales (2004) suggests that the first move of the introduction is best described as topic generalisations. In the case report introductions, these generalisations usually consist specifically of statements of well

established clinical knowledge and well established experience in the field, signalled by lexis such as *common, easily demonstrated, widely regarded, invariably, characteristic*. Some of these moves in the case reports are very short but longer examples (e.g. *BAFE*) do show increasing specificity as suggested in Swales's analysis in Figure 4.1.

Nwogu (1997), in his description of the genre structure of the medical research article introduction, also proposes presenting background information as the initial move. The second move in Nwogu's move structure is reviewing related research. There is, by contrast, in the radiology corpus, no particular move in the introductory section that has as its overall purpose the review of the literature, presumably because a case report is not generally concerned with establishing general hypotheses. Nwogu points out that the writers of medical articles deal with the limitations of previous research by indicating a gap in or negative evaluation of previous research. These equate to the first step of Move 2 in the CARS model above. The radiologists' purpose in Move 2 is similarly to establish a niche for the report but this is achieved by indicating the rarity or uniqueness of a pathology or by suggesting problems with existing diagnostic practices, which latter may be seen as negative evaluation of previous practice. In the corpus under discussion, if a condition is not commonly found in practice or reported on in the literature, this implies that experience of diagnosis and of the management of the disease is lacking. This clearly constitutes a claim that there is a niche that may be filled by the presentation and discussion of a new case, although it may be noted that Swales (1990) seems to suggest in a medical case report he discusses that the rarity of the condition in question is indicated in order to establish the territory rather than a niche.

The use of integral citations (where the name of the researcher occurs in the text) is a feature of introductions in research articles since it is one of the means that the writers use "to create research spaces for themselves, because it allows them to signal early whether claims are to be taken as substantiated or not" (Swales 1990: 151). Once again this differs in the case reports, where the necessity to establish for the reader and the research community that there is a niche to be filled is rather indicated by establishing the rarity, or relative uniqueness, of the case. This is normally achieved by means of an unattributed statement, thus indicating that the author assumes responsibility for the declaration. There is only one occurrence in the corpus of an integral citation in the introduction and even here there is no attempt to indicate stance through the use of a reporting verb. Instead, the use of the integral citation in (1) below, by allowing the early date of the first report to appear in the text, indicates to the reader just how seldom the link between the condition and its

particular underlying cause in the case at issue has been reported over a period of time:

(1) This condition was first described by Hallin in 1891. To date 57 cases…have been reported in the literature. …Of the reported cases, 10 have been attributed to underlying gastric malignancy (*GPFI*).

A comparison between the steps described by Swales for the research article and those found in the present corpus of radiology case reports has been discussed above with regard to Moves 1 and 2. It remains to discuss the steps found in Move 3. In the case reports this move consists of two steps. The first step is the equivalent of Step 1 of the CARS Move 3. Swales suggests that this step, *Announcing present work*, can be realised purposefully or descriptively or both. It is not clear why it would not be useful to regard these as different strategies, although, as defined by Bhatia (1993, 2001) and discussed in 3.3.1.1, strategies are optional choices, whereas in this move both may appear in the step. In the professional case reports, either one or the other of the steps must be chosen (although it may be noted that there is a single student paper, i.e. *ABC*, in which the writer chooses to use both). The second step in the radiology reports, *Announcing additional report contents or structure,* is similar to CARS Step 7, *Outlining the structure of the paper,* noted by Swales to be probable in some fields only. This option appears in only two of the reports in the corpus (i.e. *PCTU* and *TICA*), following the obligatory Step 1.

What follows is a brief account of the way each move in the radiology corpus unfolds and an indication of the lexicogrammatical features associated with it. How the latter analysis fits into the analytical framework of the study has been established in 3.3.1.3.

Move 1, *Establishing territory*, initiates the introduction by providing a background of generally accepted information concerning the pathology. This move occurs in 91% of the introductions in the present corpus. Present tense forms are characteristic, although present perfect forms also occur in one report where the existence of textbooks covering the more general abnormalities experienced on radiographs is mentioned.

Most of the clauses in this move choose relational processes, sometimes with the radiologist implied as Attributor or Assigner, as in (2) below. Where other processes are used these are usually verbal and mental with the radiologist/researcher implied as Sayer or Senser, also exemplified in this extract.

(2) Variants of normality and artefacts on medical diagnostic images may sometimes **be mistaken for** [Pr: relational] disease. Learning to recognise these diagnostic pitfalls **is** [Pr: relational] an important aspect of the interpretation of medical diagnostic images. The

majority of such variants and artefacts **are seen** [Pr: mental] as localised or focal changes on the radiograph and have been extensively **documented** [Pr: verbal] in a classic text (*DCAR*).

The same extract from *DCAR* is used in (3) below to demonstrate the thematic analysis. In this move, aspects of the topic of the report generally appear as theme (indicated in bold). This topic is the pathology in most of the case reports but, in this instance, it is the presence of artefacts on the radiological images.

(3) **Variants of normality and artefacts on medical diagnostic images** may sometimes be mistaken for disease. **Learning to recognise these diagnostic pitfalls** is an important aspect of the interpretation of medical diagnostic images. **The majority of such variants and artefacts** are seen as localised or focal changes on the radiograph **and [the variants and artefacts]** have been extensively documented in a classic text *(DCAR)*.

Move 2, *Establishing niche,* generally occurs together with a Move 1. While Move 1 indicates the established nature of relevant clinical and diagnostic knowledge, Move 2 focuses on the novelty or rarity of the case, and the two moves are set up specifically as a contrast, very often with Move 2 being introduced by means of an adversative adjunct, as shown in the examples in Table 4.6, where signals of contrast are italicised.

Move 2 is found in all but one of the introductions and it allows the writer to establish a niche for the report which follows. This niche relates to clinical knowledge and there are two possible ways in which it may be established. Firstly, the writer may establish that there is an unusual aspect of the pathology to be described in the report (i.e. Step 1, which occurs in 70% of the reports in which this move occurs), for example:

(4) This article describes an unusual cause as a result of tortuosity of the internal carotid artery (*TICA*).

Alternatively, the writer may indicate that there are problems with the diagnosis of the pathology (i.e. Step 2, which occurs in 60% of the reports in which this move occurs), for example:

(5) The high maternal and fetal mortality of ruptured renal artery aneurysm in pregnancy can partly be attributed to an incorrect preoperative diagnosis (*RRAA*).

Other examples may be found in Table 4.6 below:

Table 4.6 Examples of contrasting functions of Moves 1 and 2

Report	Move 1	Move 2
DCAR	… The *majority* of such variants and artefacts are seen as *localised or focal* changes on the radiograph and have been extensively documented in a classic text. In the case of CT imaging of the brain, the common catches and artefacts (*all focal*) have also been published in textbook form.	Artefacts may *however occasionally* cause a *diffuse* abnormality
HTGL	Echinococcosis, or hydatidosis, has a characteristic geographic distribution, occurring most frequently in sheep-rearing regions such as the Mediterranean countries, Oceania and South Africa. The cysts are *most commonly seen* in the liver and lungs,	*although* involvement of other organs is possible but *rare*. Hydatid disease in the head and neck region is *rare* and to our knowledge *no English report of such cases* in the thyroid gland has been published.
IAEA	Intracranial air is *easily* demonstrated on CT scan.	*However* intracranial air is *not a diagnosis in itself*. It is *merely* a manifestation of an associated abnormality and the diagnosis is not complete until the cause has been established.
LDCA	The incidental finding, on a chest x-ray, of dense, linear shadows lying above and parallel to one or both domes of the diaphragm, is *widely regarded as pathognomonic of calcification due to previous exposure to asbestos.*	…in which *the mineral could not be reasonably implicated.*
PCTU	*While* tuberculosis (TB) is *common* in South Africa	it does *not commonly* affect bone. When it does, skull involvement is *rare*.

In two instances, a reference to the rarity of the pathology is embedded in another introductory move. Thus, in *BAFE,* the introduction is structured in terms of generalisations of increasing specificity (i.e. Move 1) but includes figures indicating the low incidence of the relevant pathology and, in *TICA,* the present work is introduced (i.e. Move 3) as a description of an "unusual cause" of the pathology.

Move 3, *Presenting present work*, in the radiology introductions may be compared with the corresponding move in research articles as reported by Swales (2004). Swales (1990) observes that there is a strong link between Move 2 and 3 in the introduction, with a Move 2 being invariably followed by a Move 3, which turns that niche into a research space. Lewin *et al* (2001) question the need for Move 3 to appear in a research article introduction because, as they note, its function is filled in the abstract. Nevertheless, it invariably does occur in their corpus and provides closure for the statement of the gap in Move 2. Interestingly, in the radiology corpus, Move 3 is found in only 73% of the introductions and there are three reports in which the niche established in Move 2 is in fact filled by the actual reporting of the relevant case in the case presentation section (*BAFE, CVTH* and *IAEA*), only one of which has an abstract. The omission of Move 3 in these reports is presumably

influenced by the writer's need to be concise.

Where Move 3 does occur, the writers indicate that the niche will be occupied by the reporting of a case in one of two different ways. They either outline the purpose of the report (i.e. announce the present work purposively), as occurs in *HTGL*, or they announce the case descriptively, as in all the other instances. In every occurrence there is a clear indication of the relevance of the case or its significance in clinical medicine and this is linked to the niche established in Move 2. In the examples in Tables 4.7 and 4.8 below, the niche in Move 2 is indicated by means of italics; the links between the niche and how this will be filled in the report are indicated by means of underlining:

Table 4.7 Example of Move 3 (*Announcing present work purposively*) and its relation to Move 2

Report	Establishing niche (Move 2)	Presenting present work (Move 3: ***Announcing present work purposively***)
HTGL	Hydatid disease in the head and neck region is *rare* and to our knowledge *no English report* of such cases in the thyroid gland has been published.	The aim of this report is to discuss the importance of the combination of scintigraphy and ultrasonography prior to fine needle aspiration (FNA) in the diagnosis and management of swellings of the thyroid gland.

Table 4.8 Examples of Move 3 (*Announcing present work descriptively*) and its relation to Move 2

Report	Establishing niche (Move 2)	Presenting present work (Move 3: ***Announcing present work descriptively***)
CTOR	The condition is *seldom documented* radiologically	This case report illustrates a case of cardiac volvulus which was clearly evident radiologically
GPFI	*Rarely a* complication such as a gastro-pericardial fistula may be the cause of the fatal event. Gastropericardial fistula with the resultant pneumopericardium is an *extremely rare condition*	We present a fatal case of gastro-pericardial fistula
PCTU	It *does not commonly* affect bone. When it does, skull involvement is *rare.*	We present two paediatric cases of calvarial TB with discussion of the relevant literature

In the extracts in Table 4.9 below, Moves 2 and 3 are similarly closely related but occur in reverse order; in other words, the writer indicates that the report will be presented before going on to establish the fact that a niche for such a report exists. The moves are clearly linked, as was noted for Move 1 and 2 above, but now this link is made in terms of the case rather than in terms of the pathology.

Table 4.9 Examples of Move 3 preceding Move 2

Report	Presenting present work (Move 3)	Establishing niche (Move 2)
LDCA	We describe the case of a young child with x-ray changes typical of pleural asbestosis	in which *the mineral could not be reasonably implicated*
RRAA	We present a case of a 35-year old female who presented at ten weeks gestation with lower abdominal and right flank pain and gross haematuria. A preoperative diagnosis of ruptured right renal artery aneurysm was made with colour Doppler ultrasound	and is the *first reported case in a pregnant female*. The high maternal and fetal mortality of ruptured renal artery aneurysm in pregnancy *can partly be attributed to an incorrect preoperative diagnosis*….

The present tense again predominates in Move 3 (e.g. *we present, this case report illustrates, the aim of this report is…)*, with the past being used only when details of the current case are reported (e.g. *who presented with…, a preoperative diagnosis…was made*). There are in every example deictic references to the report or the writers (e.g. *we, this*) and these references occur as, or as part of, the theme in each initial clause. The verb *present* which is characteristic of the abstract of case reports may occur here too, for example:

(6) We present two paediatric cases of calvarial TB with discussion of the relevant literature (*PCTU*).

It should be noted that *present*, meaning 'narrate' or 'demonstrate' and categorised as a verbal process with the writer as Sayer, is used here in a different sense from its use in Move 4 (see 4.3.3.3), where it means 'the act of becoming a case', as in the following example:

(7) He presented with facial nerve palsy, neuralgia, ptosis of the right eye and partial paralysis of the left leg (*AVGA*).

The frequency (see Table 4.2) and order stability (see definition in 3.3.1.1) of the moves in the professional reports that contain introductions are indicated in Table 4.10 below.

Table 4.10 Frequency and order stability of moves in the introduction section (total 11)

Move	Frequency %	Order stability %
1	91	60
2	91	50
3	73	75

According to Skelton's (1994) approach discussed in 3.3.1.1, the figures shown identify all three moves as core moves, since the first two each have a frequency of over 85% and the third has a frequency of over 65% and an order stability of over 50%. The frequency figures in the table are calculated for those reports where the introduction occurs in the corpus. In actual fact, the introduction section may be omitted, and, taking the entire corpus into account, Move 1 is found in only 45% of the entire corpus, Move 2 in 50% and Move 3 in 40%. In order to accept a proposed move as stable in a particular genre, Nwogu (1997: 124) has suggested that the particular function "must have occurred with about 50% regularity in the corpus." However, it is in relation to a particular section (e.g. introduction or discussion) rather than the entire article that Skelton's (1994) classification of a move as a "major feature" (what I propose to call a core move) is formulated and his classification achieves taking order stability into account as well.

The numbering of the moves reflects the canonical ordering but in the corpus the order of moves actually shows some variation and the order 1, 3, 2 is found in *LDCA*; 3, 2 in *RRAA*; and 2, 1 in *CVTH*. The length of the moves is also flexible, with the word count for Move 1, for example, ranging from 8 (in *PCTU* and *IAEA*) to 251 (in *CVTH*). Since it will be demonstrated (4.3.4) that the abstract is able to replace the introduction in medical case reports, the seemingly smaller percentages of occurrence of Moves 1, 2 and 3, despite their important role in creating a research space, can be accounted for.

4.3.3.2 Problem-Solution pattern in the case presentation section

It was noted in the previous chapter (3.3.1.2) that, while Swales (1990) acknowledges the existence of the Problem-Solution pattern in some research article introductions, he prefers to use a more rhetorical approach to labelling the moves of the introduction. Nevertheless, Bruce (2008a) maintains that this sort of pattern is essential in describing particular social genres (see 2.2.2.4). The case presentation proper in the case report is always a narrative, set up in terms of the Problem-Solution structure, and, since this is characteristic of the genre, it is important to explore how this pattern is realised in the corpus of professional writers and to compare this with the way in which students employ it (see 4.4.2.5).

To exemplify the Problem-Solution structure, one of the shorter and least complex case presentations from the professional corpus (*PCTU*) is analysed in Table 4.11 below. Italicised comments within brackets have been added to the text in the table in order to explain relations between sections of text where necessary. The rationale for each step of

the analysis appears in brackets in the second column and refers to Hoey's (1983) mapping condition discussed in 3.3.1.2.

Table 4.11 Example of Problem-Solution pattern in the case presentation section (*PCTU)*

Text: *PCTU*	Problem-Solution structure	Genre structure	
A three-and-a-half year-old boy presented with a two-month history of a slowly increasing swelling over the right frontoparietal region of the skull. There were no constitutional symptoms of TB or TB contacts. The swelling was non-tender and was not fluctuant.	**Situation + Problem** (Cause; the swelling is the aspect of the situation requiring a response).	**Move 4:** Reporting problem	
(As a result) A skull X-ray (Figure 1a) and a subsequent CT brain (Figures 1 b and c) were performed.	**Response 1** (Consequence; agent implied by use of passive).	**Step 3:** Detailing radiological investigations and results	**Move 5:** Reporting investigation of problem
The diagnostic differential at this stage included TB, eosinophilic granuloma, neuroblastoma metastases and a primary bone tumour.	**Result** + **Negative Evaluation** (no final diagnosis is made – 'diagnostic differential') Reinstates **Problem** (Cause)		
(Laboratory evaluations were performed by the medical team)	**Response 2** (Consequence; response implied by results below; agent implied)	**Step 2:** Detailing laboratory evaluations and results	
The ESR was raised (55 mm/hour) and the Mantoux was strongly reactive.	**Result**		
Chest X-ray *(which was performed by the medical team)*	**Response 3** (Consequence; agent implied)	**Step 3:** Detailing radiological investigations and results	
was suggestive of bilateral hilar adenopathy.	**Result** + **Negative Evaluation** (no final diagnosis is made – 'suggestive of') Reinstates **Problem** (Cause)		
Full blood count and bone marrow aspirate *(which were performed by the medical team)*	**Response 4** (Consequence; agent implied)	**Step 2:** Detailing laboratory evaluations and results	
were normal *(and therefore did not lead to a diagnosis)*	**Negative Evaluation** (implied by the presence of a further investigation) Reinstates **Problem** (Cause)		
Biopsy *(performed by the medical team)*	**Response 5** (agent implied)	**Step 4:** Detailing histological investigations and results	
demonstrated necrotising granulomatous inflammation in keeping with TB.	**Positive Result** (confirmation of diagnosis – 'in keeping with') brings pattern to an end **= Problem** (TB has been diagnosed and the condition requires management so that its effects may be reversed; Cause)		
He was *(as a result)* commenced on three-drug anti-TB treatment.	**Response** (Consequence; agent implied by passive)	**Move 6:** Reporting response to problem	
At follow-up at three months, the child was well and the mass was decreasing in size	**Positive Result** (evaluation: 'well…decreasing in size') Ends the pattern and the case presentation.	**Move 7:** Evaluating response	

The particular text reproduced here demonstrates two different ways in which recycling of the Problem-Solution pattern occurs in the corpus, with, firstly, the original Problem being recycled after a negative Evaluation and, secondly, a new Problem emerging as a result of the diagnosis. In the first type of recycling, the initial Problem (swelling of the skull in this example) gives rise to a series of Responses; this continues until a Positive Result (i.e. a

diagnosis) emerges. As Hoey (2001: 124) explains, "[i]t is only when the Response can be shown to be in truth a solution that the pattern is felt to be complete." Hoey (1983) has pointed out that it is the fact that a Negative Evaluation signals a Problem not only within a situation but also in the Evaluation of a Response that allows for multilayering in a text. He distinguishes several types of multilayering which follow from this fact. The type which is most frequent in the case presentations, and which is exemplified in the example below, is spiral multilayering. Thus, when no final diagnosis is made after the first investigation mentioned in the text, this indicates that the Problem has not been resolved and sets up the expectation of another Response. There may be several attempts to solve the same Problem before a Positive Evaluation ends the pattern. This type of recycling of the pattern is found in a wide range of texts (Hoey 1983) in addition to the case reports.

The second way in which the Problem-Solution pattern is seen to recur above appears, by contrast, to be characteristic of the particular genre of the case report and is based on the fact that a medical diagnosis can be interpreted in two different ways. On the one hand, a positive diagnosis may be the Positive Result of attempts by practitioners of diagnostic radiology to solve a Problem presented by various symptoms. It may, on the other hand, be construed as a biomedical problem, which requires a Solution in terms of managing the condition, and thus as a Negative Evaluation signalling the start of a new Problem-Solution pattern. Flowerdew (2003: 491) demonstrates a similar recycling of the pattern after what she terms a "partial solution" to the original Problem that sets up another Problem to be solved. In the text in Table 4.11, the case presentation does not end after the final diagnosis of tuberculosis has been confirmed (a Positive Result). A medical condition has now been identified; this is established in the text as an aspect of the new Situation which requires a Response (i.e. it is a new Problem) and the pattern is once more recycled, although the Response now required by the Problem is an appropriate course of management rather than an investigation. In some of the case reports, this type of recycling may occur more than once in the same presentation in instances where, after a positive diagnosis is made, there is still a need to provide sufficient additional findings to enable a suitable course of management to be decided on. Thus, for example, in *RRAA,* once the diagnosis of right renal artery aneurysm is made, angiography is undertaken in order to find out the presence and position of the feeding vessels so that they may be embolised.

The evaluation of Results in the case report generally reflects a medical point of view; in other words, Results need to be interpreted in relation to the goals of the medical team working with the patient. Thus, when a diagnosis is being sought, an examination

(Response) which indicates no abnormality (Result) must be evaluated as Negative. If an abnormality is demonstrated but no diagnosis has yet been made, this is also a Negative Result. Adams Smith (1990: 423) indicates a similar situation in Unexplained-Explanation texts, where "the *lack* of clear evidence positively evaluated constitutes a negative evaluation." In the case reports, a cluster of findings providing a diagnosis (which may include both normal and abnormal findings) is evaluated as Positive. Therefore, lexical signaling operates here in a particular way. For example, the use of the word "normal" does not necessarily operate as a lexical signal of positive evaluation, since it is often the constellation of normal and abnormal findings that contributes toward the final diagnosis.

There are four reports in the corpus (i.e. *DGCE, FBRE, IAEA, TICA*,) that have a case presentation section ending with a Positive Result to the Response (i.e. a diagnosis) and with no indication of what the course of management might have been. The account given in *CVTH* is unusual in that two possible diagnoses are suggested and treatment reported for only one of them, while a number of investigations were carried out which confirm the second but with no subsequent treatment mentioned. The investigations described in the case report are not part of a recycling Problem-Solution pattern since none of Hoey's (1983) mapping conditions apply, indicating that, in this case, the Positive Result is not recycled as a new Problem.

All the rest of the reports continue after the diagnosis (i.e. a Positive Result as a Response to the original Problem and at the same time a new Problem) to report on the management of the condition (i.e. a Response to the new Problem). *DCAR* has an unusual Result following the second Response to the Problem. The case presented is that of a patient who was attacked by a mob. He suffered burns as a result of being "necklaced" and also a fracture of the skull (Problem). The patient was given emergency treatment of the burn (Response 1) and sent for a CT scan (Response 2). The Result that follows the second Response is not a medical finding or a diagnosis (as would generally be expected, based on the pattern established in this corpus) but a diffuse abnormality on the radiographic image. *PHPE* also shows an unusual feature, since the normal Problem-Solution pattern is interrupted by the sudden development of a new Problem, unconnected with the original Problem, which is followed by a Response but which, after a Negative Result is indicated, does not proceed. The original pattern is then resumed and the text develops through several cycles, finishing with a Positive Result.

Setting aside these more unusual examples, the general pattern can be represented as in

Figure 4.3 below:

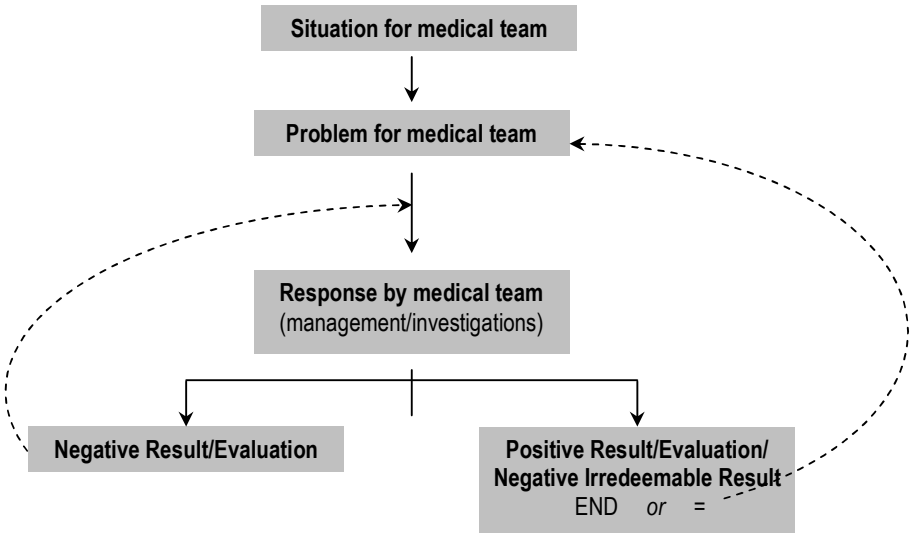


Figure 4.3 Problem-Solution pattern in the case presentation section of professional case reports

A Negative Irredeemable Result, such as demise of the patient, as in *CTOR* and *GPFI*, will end a pattern with no possibility of recycling. It should be noted that, because the recycling of the Problem-Solution pattern which follows a Negative Result or Evaluation differs from that which follows a Positive Result, this is reflected in the positioning of the arrows in the diagram above. The former reinstates the same Problem, while the latter should be considered to be the start of a new pattern with a new Problem. As was exemplified in Table 4.11, there may be more than one Response to a Problem. Each Response generally has a Positive or Negative Result/Evaluation. Any Positive Result can bring the pattern to an end.

Other complexities within the general pattern occur. Six of the reports (i.e. *AVGA, CTOR, ENPC, PHPE, RRAA* and *VGMA*) have an intermediate stage between Problem and Response that functions like the element which Hoey (2001) labels as Plan. The use of signals like *arrangements were made*, *it was decided,* and *planned* seems to indicate "a shift of focus from Problem without having yet reached the point of Response" (Hoey 2001: 127). The Response that follows may be an investigation and/or the management of the condition. The end of the pattern is reached after the final Result/Evaluation. This is indicated in Figure 4.4 below:

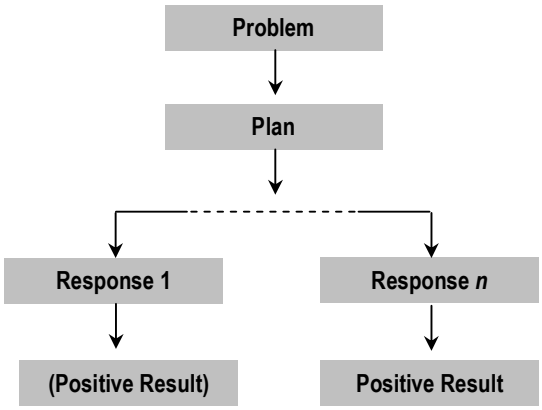


Figure 4.4 Problem-Solution pattern including Plan

One possibility that occurs in connection with a Plan in the current corpus is what I propose to label the Potential Problem. A Potential Problem always requires a decision from the patient before the medical team can respond in terms of management. Thus in *RRAA*, the plan is to further investigate the diagnosed aneurysm by means of an angiogram. There is an implied Potential Problem, however, with the possible effect of the radiation on the patient's foetus, and the patient agrees to have a termination of pregnancy. This is represented in Figure 4.5 below.

In this figure also, another type of multilayering is evident which can occur when a text contains more than one participant. This sort of reference to additional Problems and participants has been noted to occur in complex texts by Ghadessy (1983). Hoey (2001) indicates how such texts can be accounted for by the interweaving of Problem-Solution patterns with different participants. While the dominating viewpoint in the case reports is that of the medical profession, there are, as seen above, situations in which the patient's viewpoint is represented, namely, when decisions have to be made concerning investigations or treatments that present some risk.

The example below shows how the Problem-Solution patterns relating to the different participants are linked:

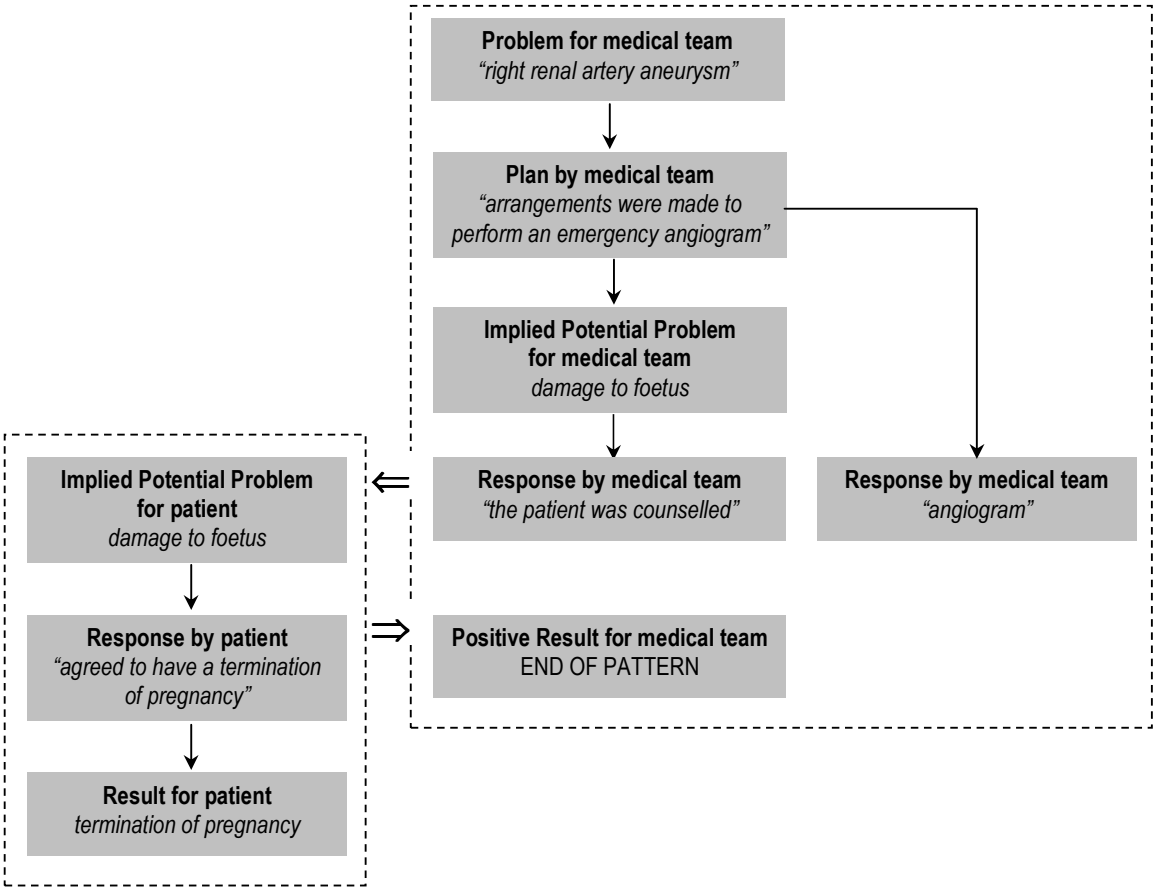


Figure 4.5 Example of Problem-Solution pattern including Potential Problem *(RRAA)*

This also occurs in the text (*AVGA*) represented in Figure 4.6 below:

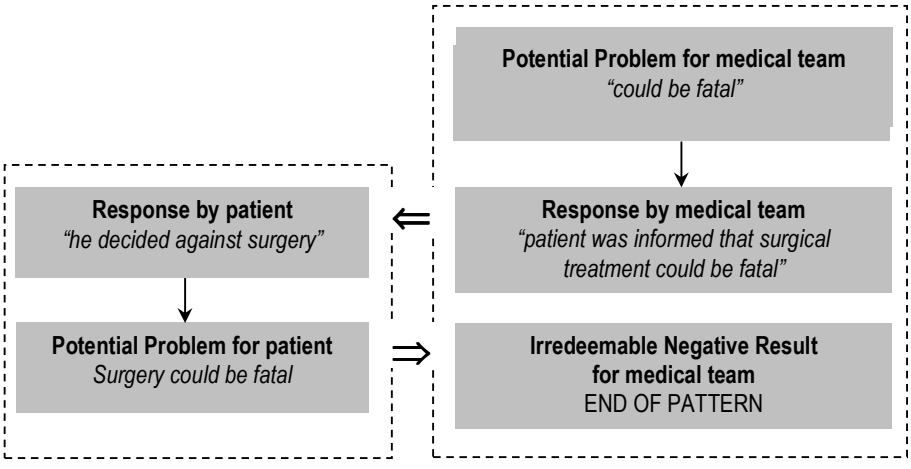


Figure 4.6 Example of Problem-Solution pattern including two participants *(AVGA)*

Because the Problem-Solution discourse pattern overlaps with the moves in the case presentation, as shown in Table 4.11, it is usually helpful in indicating boundaries between moves in this section of the case report. These moves are discussed in the next section.

4.3.3.3 Moves in the case presentation section

The rhetorical moves and steps in the case presentation section are represented in Figure 4.7 below.

Move 4:	**Reporting problem**
	via
	Presenting patient and patient history
Move 5:	**Reporting investigation of problem**
	via
Step 1:	Detailing clinical examinations and results
	and/or
Step 2:	Detailing laboratory evaluations and results
	and/or
Step 3:	Detailing radiological investigations and results
	and/or
Step 4:	Detailing histological investigations and results
	and/or
Step 5:	Detailing investigative procedures and results
	and/or
Step 6:	Presenting diagnosis of pathology
Move 6:	**Reporting response to problem**
	via
	Reporting treatment given to patient
Move 7:	**Evaluating response**
	via
	Reporting change to condition of patient

Figure 4.7 Moves and steps in the case presentation section of professional case reports

Move 4, *Reporting problem*, occurs in all the reports and focuses on introducing the patient and providing a history. Past tense forms predictably characterise this move. The history is usually brief but where necessary can report years of medical interventions. Thus, in *BAFE,* the writers indicate the obscurity of the underlying stroke mechanism (until it was successfully diagnosed by them) by detailing a story of attacks increasing in severity and number, against a background of difficulty in discovering the cause.

The introduction to the patient in Move 4 is clearly focused on the situation which immediately led to the patient presenting. In each report the patient (or, after the initial

clause, sometimes the patient's symptoms or the treatment given to the patient) is the theme of clauses in this move. The start of the presentation is clearly signalled in one of two basic patterns, as indicated below:

1 (A [*age and gender*] patient) ([*pseudonym*]) { presented / was admitted / attended / was referred (by a general practitioner) } ((at/to) [*hospital*])

(on [*date*]) (for [*investigation*]) { with / because of } (a [*time span*] history of) { *symptom* / *condition.* }

2 (The patient) ([*pseudonym*]) ((is/was) a [*age and gender*] (who)) { had no previous history / was attacked / sustained [*injury*] / suffered attacks of [*symptoms*]. }

The pattern demonstrated in 1 above is an indexical realisation of the genre and occurs in 75% of the reports in the professional corpus.

The dual meaning of the verb *present* has been mentioned in 4.3.3.1. Hunter (1991: 58) points out that these two meanings are clearly distinct and suggests that the very fact that the verb has a double meaning tells us "something about the nature of case presentation and about its importance for medicine as both an intellectual discipline and a transmissible body of practical experience". Thus, when patients present at the hospital, this gives them a medical existence and allows their bodies to become texts for which, subsequently, the presentation of these cases in oral or written form provides narrative interpretations.

No more than two or three sentences generally follow the formulaic start of Move 4 and these simply expand on the presenting symptoms. In this move, the theme in each clause generally refers to the patient, with the symptoms sometimes also being thematic in clauses that follow the opening. Temporal adverbials frequently appear as marked themes, which is typical in narratives. In the following extracts, which exemplify these various features, the theme of each clause is highlighted, the marked themes are underlined and the displaced theme italicised:

(8) **<u>On 5 December 1996</u>** *a twenty-two year old male* attended a local hospital following referral by a general practitioner. **He** presented with an unsteady gait, slurring speech, severe

headaches and his tongue pulled slightly to the left. **During his clinical examination** *his mother* mentioned **that he** sustained a head injury during childhood *(AVGA)*.

(9) **A 47-year old male** presented to Prince of Wales Hospital with a one year history of right sided progressive nasal obstruction following an episode of upper respiratory tract infection. **The obstruction** was worse on forced expiration **and [the obstruction** was] more noticeable during swimming *(SPOL)*.

(10) **The patient** is a 32-year old woman **who** was referred for MR imaging because of a long history of intermittent headaches. **She** was otherwise healthy with no medical history of note. **On specific questioning** *she* mentioned **that she** recently found it difficult to walk in a group **since she** kept bumping into people *(DGCE)*.

While a general framework of chronology is essential in the case presentation, an actual date is provided in only one instance.

The examples above demonstrate the brevity that in most cases characterises the medical history in Move 4. It may be noted that a social history is not included, although it is a feature of the oral presentation that is constructed in the wards and of many of the student papers (see 4.4.2.6). There is only one instance in the professional corpus where the medical history is covered in any detail (i.e. *BAFE*). Move 4 in this report, reproduced in (11) below, is worth analysing in some detail because the uncharacteristic accumulation of detail it displays appears to be deliberately presented and relates very clearly to the identity of the writers as contributors to clinical knowledge within the discourse community. As such it provides a contrast with the student texts to be discussed below where the medical history is generally lengthy but not for the reasons discussed here.

The title of the report identifies the phenomenon to be described as *An obscure cause of stroke: Basilar artery fenestration*. It is in relating the complexities of the long years of "progressively more debilitating attacks of dizziness" and other unpleasant symptoms, with "various diagnoses" made by "different neurologists" that the writers are able objectively to indicate the extent of the difficulty of the diagnosis and so justify the use of "obscure" in the title. This account also successfully emphasises the extent of their achievement in finding the unusual cause of the problem (in comparison with the puzzled neurologists who had dealt with the patient previously).

The history is carefully constructed with almost every clause having as its starting point either a reference to the patient or a reference to the attacks, with a balance in frequency being achieved between them as they appear cyclically throughout the move, although the normal pattern in this move is for references to the patient to dominate as theme. Temporal

adverbials in *BAFE* appear as marked themes, as is usual in the narrative sections of the reports, but here they draw attention to the passage of long stretches of time represented within a concise summary of the history (*one year later*, *during the next four years*).

These features are shown in the text below, in which the themes are highlighted and the marked themes underlined. The first sentence constitutes a hypertheme giving "an orientation of what is to come" (Martin and Rose 2003: 181) and each of the two themes which are central to the section as a whole appears here:

(11) **A 71 year old white man** suffered progressively more debilitating attacks of dizziness, diplopia, imbalance and inco-ordination over a seven year period **with several daily attacks** occurring at time of presentation.
He first reported intermittent diplopia eight years prior to presentation, **[the attack]** lasting about 90 minutes. **A second attack** occurred nine months later. **He** was seen by his general practitioner and ophthalmologist at the time **with no abnormality** noted. **One year later** *the attacks* increased in frequency to one every few months **[the attacks]** culminating in a much more severe attack with dizziness lasting two hours but without abnormality seen on a MRI scan. **During the next four years** *the diplopia* increased dramatically **[the diplopia]** varying from under one minute up to 30 minutes **and [the diplopia]** could occur up to seven times per day. **An episode** occurred subsequently with dysphasia, imbalance and dizziness lasting about 30 minutes **but** with complete return to normality. **A second MRI brain scan done at the time** was normal. **He** was given various diagnoses such as transient ischaemic attacks and migraine by different neurologists. **An even more disabling attack** occurred six years after his first symptoms wherefrom **he** awoke with speech impairment, inability to walk, loss of coordination and difficulty in handling objects. **This time** *a stroke* was diagnosed **and he** improved again **only** to have a marked exacerbation of his symptoms one month later **with intermittent attacks of a similar nature** occurring 2-3 times per day lasting about between 30-60 minutes. **He** was quite disabled by these and **[he]** described the left sided image (**[he** was] referring to his diplopia) as "coming and going all the time". **The most recent presentation** was associated with almost continuous diplopia and dizziness. **He** was otherwise in good health and **[he]** had no cerebrovascular or cardiovascular risk factors, no deleterious habits and no general or neurological illness *(BAFE).*

As in the extract above, the symptoms in Move 4 are usually described in terms of their duration, intensity or severity, for example *progressive breathlessness, extremely painful neck, severe burn injury, increasing cranial size, palpable lump, decreased vision, debilitating attacks of dizziness*.

Another aspect of this move that merits attention is the role of the patient, which is interesting from a transitivity perspective. The patient is most frequently Actor or Carrier in the clause, both of which are what Hasan (1985a) labels *-er* roles, and less frequently Goal, which is an *-ed* role. It might appear then that the patient is construed in the case presentation as having agency. However, in every instance apart from one, across the entire corpus, it happens that when the patient is Actor the clause has no Goal. This is important since, as Hasan (1985a: 45) shows, participants may be ranked along a cline of

dynamism to indicate to what extent each type has "the quality of being able to affect the world around us, and of bringing change into the surrounding environment", namely, the degree of agency they are represented as having. The two roles found predominantly in Move 4 (i.e. Carrier and Actor without Goal) are both low on the scale of dynamism. Thus, although in this move the patient has an *-er* role more frequently than in any other, this does not indicate that the patient is being construed grammatically as having effectuality, since the participant roles given to the patient are low in dynamism. Examples of these types of participant include the following:

(12) **He** [Carrier] had been previously well (SSRH).

(13) On 5 December 1996 **a twenty-two year old male** [Actor] attended a local hospital [Scope] following referral by a general practitioner (AVGA).

The notion of agency and how it plays itself out in the two corpora will be further explored in the transitivity analysis of an example from each corpus in 4.5.1.

Move 5, *Reporting investigation of problem*, like Move 4, is found with 100% occurrence in the corpus. The move continues with the presentation of, in Hoey's terms, the rhetorical Problem which is introduced in the previous move. The shift of purpose from describing what was ascertained at presentation to describing what investigations performed by the medical team bring to light is captured in the genre analysis by a new move. The lexicogrammar reflects this new direction since the most common theme now refers to the type of examination or test carried out or to signs, including radiological signs, or symptoms. The type of examination or test marks the different steps contained in this move (e.g. *motor testing, physical examination, clinical assessment* in Step 1; *ESR, blood count* in Step 2; *CT brain, chest X-ray, angiogram, barium swallow* in Step 3, *biopsy* in Step 4; *emergency laparotomy, emergent operative intervention* in Step 5) and is construed as Carrier or Token. The other type of Carrier that occurs refers to symptoms and signs (e.g. *swelling, stigmata of generalized disease, supraclavicular bruits, mass, hydrocephalus, evidence of injury*) and these also appear as Phenomenon or Existent in the clause. Step 6 states the diagnosis. Predictably, it is Step 3 in the latter that is obligatory, since this step details radiological investigations and their results. Marked themes that occur are causal, location, matter or manner adjuncts.

Members of the medical team are rarely mentioned in this move but their presence in the text is evident since they are frequently understood as Senser or Attributor in mental or relational clauses and as the Actor in passive constructions or in congruent readings of

nominalisations, for example:

(14) …he was noted to have marked developmental delay (*PCTU*) - (Senser elided).

(15) On presentation he was found to be emaciated with a tinge of jaundice, left supraclavicular lymphadenopathy, pitting oedema of the lower limbs and in congestive cardiac failure. (*GPFI* - Move 5) (Attributor elided).

(16) A diagnosis of right renal artery aneurysm was made (*RRAA*) - (Actor elided).

(17) Ultrasonography was not performed (*HTGL*) - (Actor elided).

Mention of diagnoses also occur for the first time in this move, for example, *diagnostic differential of…, suggestive of…, suspected …, positive diagnosis of…, in keeping with….*

Move 6, *Reporting response to problem*, is a frequent move, appearing in 80% of the reports in this corpus. It is characterised by the use of references either to the patient or to an aspect of treatment as theme and causal, temporal or manner adverbials occur as marked themes. The majority of the processes are material. The explicit occurrence of an Actor in the clause is rare but medical personnel are always understood as being in this role. An example from this move is provided in (18) below, where themes are shown in bold, the marked theme (indicating the start of the surgery) underlined and the displaced theme italicised:

(18) **The patient** was admitted [Pr: material] for excision under general anaesthesia. **Under endoscopic control** *the anterior wall of the sphenoid sinus* was opened [Pr: material] **and the polyp** together with its sphenoidal component was removed [Pr: material] *(SPOL).*

Several of the references to the patient are to organs and parts of the body or patient activities rather than to the patient as a person, for example:

(19) **The pericardium** was opened anterior to the right phrenic nerve. **The superior pulmonary vein** was clamped intrapericardially ensuring proximal control (*CTOR*).

Move 7, *Evaluating response*, evaluates either a particular management procedure or the state of the patient following treatment. The most frequent pattern therefore is for Move 7 to follow the response to the problem reported in Move 6 and this is found in 65% of the reports in this corpus. There are three reports (i.e. 15% of the corpus) in which, although Move 6 occurs, it is not followed by Move 7 and there are four reports (i.e. 20%) where neither move occurs. Because Move 7 never exists on its own and only appears after Move 6, it is classified as a tied move.

Appearing as themes in the clause in Move 7 are references to the patient or the condition,

to a medical procedure or to a radiological investigation, with marked themes often indicating when the evaluation took place. Themes may also refer to the recovery period or to follow up. Examples of these include the following:

(20) **Thyroid scintigraphy and ultrasound** showed no residual thyroid tissue on the left side (*HTGL*).

(21) **The postoperative period and recovery** were uneventful (*RRAA*).

(22) **At follow-up at three months** *the child* was well **and the mass** was decreasing in size (*PCTU*).

Evaluative lexis characterising this move includes adjectivals such as *good, pain free, normal, symptom free, uneventful, without any deficit, unsuccessful, decreased, inoperable, less easily visible, poorly seen, unchanged*.

The moves just outlined make up the case presentation section of the report. The numbering of the moves captures the most frequent order, which is evident in Table 4.12 below and is a reflection of the prototypical order. The total of the patterns indicated in this table is 21, since *PCTU* reports on two cases. It is evident from the patterns shown here that Move 4 invariably initiates the section and it is rare for Move 5 not to follow. Move 6 generally follows Move 5. Move 7 frequently follows Move 6 directly.

Table 4.12 Variations in move order in the case presentation section of professional case reports (Total 21)

Move order	Number
45	4
4567	4
4567-67	3
465	2
457	1
456-57	1
456	1
456-56	1
456-567-67-67	1
456-575-45	1
456-4567-67-67-6	1
4656-4567	1
Total	**21**

Nevertheless, the temporal order of the events narrated does not always conform to the basic move pattern. For example, emergency treatment, which would be part of reporting the management of the patient (Move 6), will always occur prior to any investigations in the hospital context and this is reflected in a number of the case reports in which Move 6 precedes Move 5. Histological assessment (Move 5, Step 4) often occurs after surgery

(Move 6) and this is also affects the ordering of the moves. The story of the search for a diagnosis and then the successful management of a condition is not necessarily a straightforward one and, as has been discussed in detail above, recycling of the moves is often evident. Management of a condition is often performed in stages, each of which may be followed by an evaluation (*BAFE*, *LDCA*, *PHPE, RRAA, VGMA*); the patient may develop a new problem while being treated for the original condition (*CTOR, GPFI, PHPE*); or the initial treatment may not lead to an amelioration of the condition and new investigations then need to be made (*GPFI*). This influences the order stability.

The order stability (see 3.3.1.1) is shown together with the frequency of each move in Table 4.13 below and it is clear that Move 6 (*Reporting response to problem*) is not a core move in this corpus since it has too low a rating for order stability. Move 7 (*Evaluating response*) is a tied move and therefore no separate measure of order stability is provided in the table.

Table 4.13 Frequency and order stability of moves in the case presentation section of professional case reports (total 20)

Move	Frequency %	Order stability %
4	100	71
5	100	50
6	80	32
7	65	-

While the narrative of the case reflects the order of events, it is "shaped by the physician's quest for an understanding of the patient's illness, [namely] a diagnosis" (Hunter 1991: 65). In this way it is like a detective story, simultaneously characterised by both logical argument and narrative (Sinclair 2000).

4.3.3.4 Moves in the discussion and conclusion section

Five different moves conclude the case report. There are two introductory moves, as discussed in 4.3.2, followed by two moves that review the literature and a final move (i.e. Move 12) that functions as the conclusion of the entire report. Move 12, if it occurs, may be found at the end of the section headed "Discussion" or under the separate heading of "Conclusion".

The rhetorical moves and steps in the discussion and conclusion section may be represented as follows:

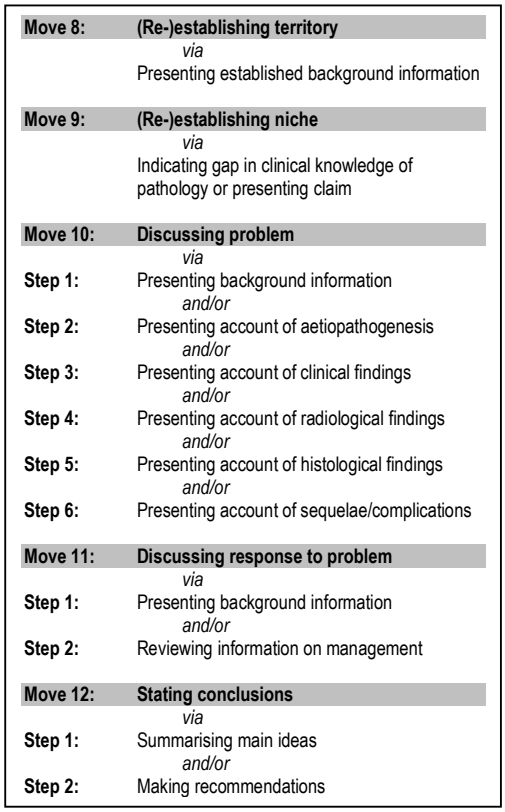


Figure 4.8 Moves and steps in the discussion and conclusion section of professional case reports

Move 8, (*Re-)establishing territory*, together with Move 9, (*Re)-establishing niche*, forms an introduction to the discussion section of the report and these moves have a similar rhetorical role to play as the two initial moves of the report.

Table 4.14 Examples of contrasting functions of Moves 8 and 9

Report	Move 8	Move 9
AVGA	…The majority of literature states that *most* intracranial vascular malformations involving the vein of Galen are *congenital* pathologies as the clinical symptoms usually become evident in the neonatal period or in early childhood. This aneurysmal dilation of the vein is *usually* associated with an angiomatous malformation and arteriovenous shunt which could lead to severe cardiac failure resulting in neonatal death.	*However*, it has been documented that aneurysms of the vena Galen *rarely occur in adults* as in the case under discussion.
DBCY	Breast cysts are *common*….they *frequently* regress *after menopause*.	Our patient is *unusual* as the cysts disappeared *so rapidly*.
GPFI	*Whilst* the complications of malignant gastric ulcers are *usually predictable.*	*only* awareness of the *rare* and invariably fatal gastropericardial fistula occurring as a result of this condition will result in its early recognition and treatment

IAEA	Pneumocephalus is a *not uncommon* finding in association with acute head injury. Air may enter directly through a scalp wound with underlying skull fracture but is *more usually* seen in association with a fracture involving the air-spaces within the petrous temporal bones or paranasal sinuses. Post surgical air-loculi are *common*….	A number of *rare* extracranial causes of intracranial air have been described.
PCTU	TB is *endemic* in developing countries and is becoming *more prevalent* with the rise in human immunodeficiency virus (HIV) infection.	Calvarial TB is *rare*, with only a *few cases* described in the current literature.

The same sort of contrast as noted between Moves 1 and 2 (4.3.3.1) is repeated here, with Move 8 indicating what is well established with regard to the pathology and Move 9 shifting to the novel or problematic, signalled by an adversative conjunction and/or lexis that sets up a contrast with what went before. This relationship of contrast is indicated using italics in the examples in Table 4.14 above:

The lexicogrammatical features associated with Move 8 are similar to those noted for Move 1, with aspects of the pathology being represented as theme (in bold in the example below) and the selection of present tense (underlined), for example:

(23) **Breast cysts** are common **[breast cysts]** occurring in 3-5% of women at autopsy. **The peak incidence [of breast cysts]** is between 40-49 years of age. **The reason why cysts disappear** is unknown **but [the disappearance of the cysts]** is probably due to changing oestrogen levels **as they** frequently regress after menopause (*DBCY*).

Most of the clauses choose relational processes. Where other processes are used, these are usually verbal and mental with the radiologist/researcher as Sayer or Senser. These various processes are exemplified in (24) below:

(24) The true incidence of renal artery aneurysms **is** [Pr: relational] still unknown The incidence based on autopsy studies **is** [Pr: relational] 0.01%. However, angiographic studies [Token] **suggest** [Pr: relational] a much higher incidence. In addition **Harrison et al** [Sayer] **reported** [Pr: verbal] that 1.5% of all potential kidney donors who underwent angiographic evaluation **had** [Pr: relational] renal artery aneurysms *(RRAA).*

Move 8 occurs in 50% of the reports and can be regarded as a tied move since, if it appears, this is always in conjunction with Move 9. Because it is the purpose of this move to provide background information, the writers sometimes cite the literature.

Table 4.15 Summary of moves establishing research space in professional case reports showing semantic relationships between moves

Report	Move 1	Move 2	Move 8	Move 9
AVGA			Literature states that AVGs are *congenital.*	AVG is **rare** especially *in adults.*
BAFE	Cerebral artery fenestrate-ions may predispose to neurological conditions.			Early diagnosis is important for saving unnecessary investigat-ions (i.e. there are **diagnostic difficulties***)* and for treatment of the stroke.
CTOR	Cardiac torsion linked with high mortality particularly when not recognised. Clinical signs are often non-specific but can be con-firmed radiologically.	Cardiac torsion is **rarely** documented radiologically.		Cardiac torsion is **rare** and fatal if not recognised.
CVTH	Venous thrombosis *(in general)* has a variety of causes and signs.	*Cerebral* venous thrombosis is ***rare*** and **difficult to diag-nose**.	Contraceptive medication has *various* side effects.	CVT is a ***rare*** complication of contraceptive medication. The condition is **difficult to diag-nose** because it is not obvious.
DBCY			Breast cysts are *common* and disappear *after menopause*.	This case is ***rare*** as cysts disappeared *so rapidly*.
DCAR	Abnormalities on images are *usually focal*	Abnormalities are ***occasionally*** *diffuse*.		
FBRE			Characteristics of fibro-matosis *(in general).*	Fibromatosis of *breast* is **rarely** reported.
GPFI	Gastric cancer *(in general)* is a terminal condition.	**Rarely** death is caused by *gastropericardial fistula*, a complication.	Complications of gastric cancer are usually *pre-dictable*.	Gastropericardial fistula is ***rare*** but diagnosis will allow treatment.
HTGL	Hydatidosis is *frequent* in SA, with cysts found *commonly* in liver and lungs.	Cysts in other organs are ***rare*** and ***no reports*** *of cysts in the thyroid gland* have previously been pub-lished.		This is *a report of a* ***new location*** for hydatidosis which is **not easily diagnosed** in **un-common sites**.
IAEA	Intracranial air is *easily demonstrated* on CT scan.	Intracranial air is ***not a diagnosis*** and cause must be established.	Intracranial air is *commonly* found *after head injury or head surgery*.	*Extracranial* causes of intra-cranial air are ***rare.***
LDCA	Particular x-ray *findings are widely accepted* as denoting pleural asbestosis.	Asbestos *could not be im-plicated* in this case (thus **challenge to accepted diagnostic interpretation**).		There is *no evidence* of ex-posure to asbestos in this patient and the extensive signs of asbestosis are *unlikely* to occur in such a young child (thus **challenge to accepted diagnostic interpretation**).
PCTU	TB *(in general)* is *common*.	TB in *bone/skull* is ***rare***.	TB *(in general)* is *endemic.*	*Calvarial* TB is ***rare***.
RRAA		This is the ***first report*** of renal artery aneurysm in a pregnant patient. There have been **problems with diagnosing** the condition in pregnancy.	The incidence of the condition in general is not established but a *high incidence* is suggested.	This condition in pregnancy ***is very seldom reported***.
SPOL			Polyps have *characteristic* features.	Choanal polyps are ***rare*** but share characteristics with other choanal polyps (leading to **diagnostic difficulty**).
TICA	*Many* causes of pharyngeal mass	***Unusual*** cause is des-cribed.	*Common* abnormalities in pharynx.	Tortuosity is an ***unusual*** cause and this presentation **is *rare.***

KEY	
Example	**Meaning**
cause	Repetition
commonly	Contrast
challenge	Niche

Move 9*, (Re-)establishing niche,* was exemplified in Table 4.14. This move occurs in 95% of the corpus and has an important function in creating a research space for the report. The relation between Move 2 and Move 9 was discussed in 4.3.2, where it was shown that all of the reports present their rationale in one or, more usually, both of these moves. The various moves that have the function of delineating the research space for the reports are shown in Table 4.15 above, where each move is summarised and relationships between the moves indicated in order to demonstrate the careful way in which each writer has built up a rationale for the report. This analysis excludes the abstract, which is dealt with briefly later in 4.3.4. The particular type of niche indicated in each case report is highlighted in bold in the table; repetition of ideas is indicated by underlining and contrast by italics.

As demonstrated in the table, the territory established in Move 1 is re-established and even extended in Move 8 in four of the reports (*CVTH, IAEA, PCTU, TICA*). In most of the reports the rationale given in Move 2 is repeated in Move 9 but sometimes it is even extended. Thus, in *IAEA*, it is the diagnostic problem that is the focus in Move 2, while Move 9 indicates that the pathology is rare; in *HTGL*, the rationale first presented is the rarity of the condition and then in Move 9 diagnostic difficulties are also mentioned; in *TICA,* Move 2 indicates that the condition is an unusual cause of a pharyngeal mass, which is reaffirmed in Move 9 with the additional statement that the particular presentation is also rare. These relationships, spanning the case reports, are evidence of the rhetorical work done by the writers so that they may successfully claim that their case reports add to clinical knowledge. There may also be references to the literature to support claims of the rarity of a pathology or of problems relating to its diagnosis and treatment.

Having described the patterns associated with Moves 8 and 9, I now turn to Moves 10 and 11, each of which shows features of the report text type (Bruce 2008a) with the discourse pattern General-Particular (Preview-Details), in other words, a general statement followed by a description (Veel 1998). This structure is reflected in the steps indicated in the genre analysis in Figure 4.8, with Step 1 in each move constituting the Preview and the remainder constituting the Details. The predominant tense form in this section is the present but, if a reference is made to the particular case which forms the focus of the report, this may involve use of the past tense.

Move 10, *Discussing problem*, is a core move found in all the case reports. There is the possibility of a first step which consists of the general statement associated with the report text type (Preview-Details). This in fact occurs only once in this corpus (in *PHPE*),

presenting general information in the form of a definition and a statement of when the pathology was first reported. Subsequent to Step 1 are found the steps comprising the description of the pathology. These steps generally follow the convention for sequencing medical information which is common to both medical textbooks and research articles, with Step 2 as a description of the aetiology/pathogenesis (occurring in 80% of the reports in this corpus) and then Steps 3, 4 and 5 indicating respectively the clinical (50%), radiological (70%) and histological (10%) findings relevant to the pathology. Finally, Step 6 (15%) deals with sequelae and complications. Detailed discussion of diagnosis of the pathology generally occurs in Step 4 and is linked with the radiological findings. In most of the reports where this step does not occur (i.e. *BAFE, IAEA, LDCA* and *TICA*), this is because it is the importance of the role of radiology in the diagnosis and not the specific processes involved that is the focus of the report. In *AVGA*, the writer replaces Step 4 with an account of the radiological features found in the particular case (i.e. a reversion to Move 5) and, in *VGMA*, the radiological focus of the discussion concerns the management of the pathology by means of embolisation by the radiologist; in other words, it occurs in Move 11 rather than in Move 10.

As mentioned above, Step 1 occurs in only one instance in Move 10 in this corpus. This may be accounted for by the fact that Move 9, in addition to re-establishing the rationale for the report, may be considered to function as a general introductory statement concerning the pathology (i.e. as Preview in the General-Specific text type). The remaining steps constitute the Details, which tend to be held together by means of lexical strings and reference chains (Martin 1992). An example of a lexical string and a reference chain relating to the pathology is provided in the extract in Figure 4.9 below:

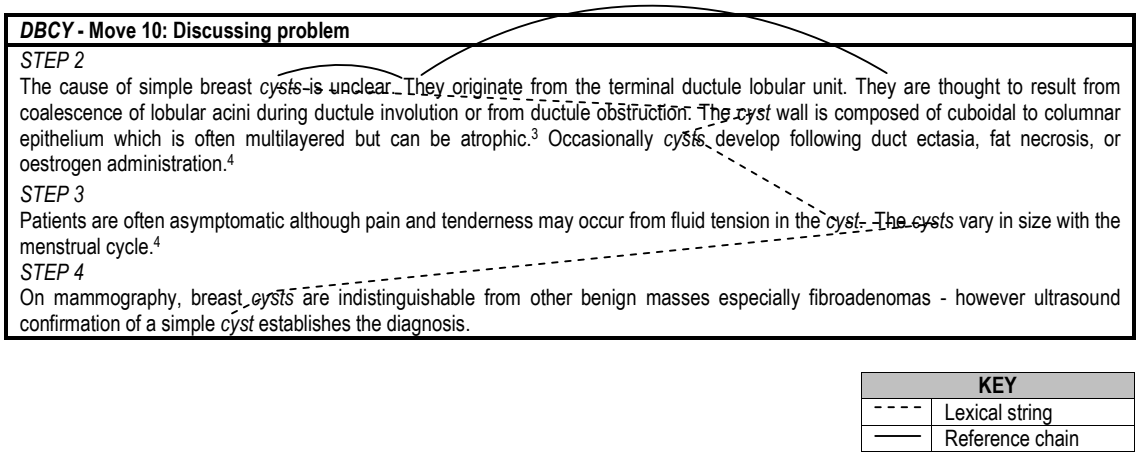


Figure 4.9 Example of semantic relations in Move 10 *(DBCY)*

Move 10 contains the majority of the references to the literature that appear in the corpus. These references generally take the form of what Swales (1990) categorises as non-integral citations, with superscript references to bibliographic details provided at the end of the report, as shown, for example, in (25) below. This extract also exemplifies how the majority of the themes in this move refer to aspects of the pathology (themes indicated in bold).

(25) **The cause of simple breast cysts** is unclear. **They** originate from the terminal ductule lobular unit. **They** are thought to result from coalescence of lobular acini during ductule involution or from ductule obstruction. **The cyst wall** is composed of cuboidal to columnar epithelium **which** is often multilayered but can be atrophic.[3] **Occasionally cysts** develop following duct ectasia, fat necrosis, or oestrogen administration.[4] **Patients** are often asymptomatic **although pain and tenderness** may occur from fluid tension in the cyst. **The cysts** vary in size with the menstrual cycle [4] **On mammography, breast cysts** are indistinguishable from other benign masses especially fibroadenomas – **however ultrasound confirmation of a simple cyst** establishes the diagnosis (*DBCY).*

Move 11, *Discussing response to problem*, has a 75% occurrence in the corpus of professional radiology reports. In this move, the literature on the treatment used in connection with the particular pathology dealt with in the report is reviewed. Move 11 has a similar structure to that of Move 10, with a Preview (Step 1) followed by Details (Step 2). Again, in most of the reports containing this move (i.e. 73% of the corpus), it begins with Step 2. Here the details may be structured by means of taxonomies and/or lexical strings and reference chains. Example (26) below is organised in the form of a taxonomy as demonstrated in Figure 4.10:

(26) Small pericardial defects close to the hilum are often left open to avoid tamponade. If the defects are large, the options available are: On the left, the pericardium is opened down to the diaphragm, which does not prevent herniation but cardiac strangulation or infarction is less likely.[11] On the right side, the pericardium must be closed, either by suturing the bare edges of the pericardium to the epicardium,[12] or patching the defect with parietal pleura[13] or fascia lata.[14] Dacron patching is complicated by sepsis, limiting its use (*CTOR*).

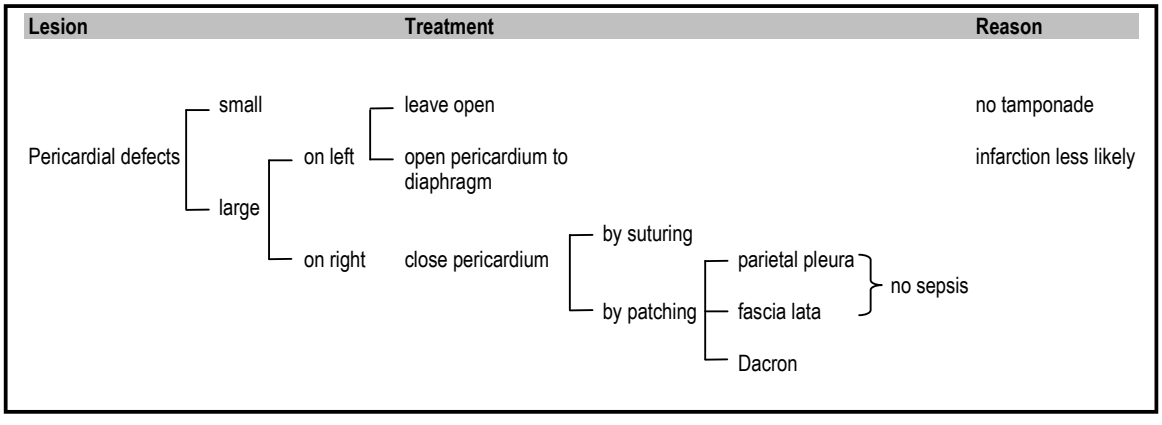


Figure 4.10 Example of semantic relations as a taxonomy in Move 11 *(CTOR)*

Themes (and themes displaced by the use of marked themes) in Move 11 usually refer to types of treatment or to the pathology and its effects, as exemplified in (27) below:

(27) **Because of the late diagnosis of rupture in the antepartum period**, *10 nephrectomies* were performed in the 24 cases we reviewed. In only four cases was repair of the renal artery performed.[1,16,24,25] **The management of an unruptured renal artery aneurysm in pregnancy or in the woman of child-bearing age who may become pregnant** is elective surgery because of the increased risk of rupture with potentially fatal consequences. **The management** differs however, in the non-pregnant patient. **Conservative management for calcified renal artery aneurysms less than 1.5 cm in diameter in the asymptomatic, nonhypertensive patient** has been recommended.[26,27,28] **Indications for surgery** include renovascular hypertension, flank pain attributable to the aneurysm, haematuria, aneurysm more than 2 cm in size (with or without calcification), renal infarction and lack of calcification in an aneurysm.[27,29] **When elective surgery is performed,** *kidney sparing procedures* are recommended. **These** would include excision of the aneurysm and primary or patch closure. **Autotransplantation and bypass grafting** are other options that are available *(RRAA)*.

In the discussion section as a whole, the moves generally refer frequently to the literature and 80% of the citations in the corpus occur in this section of the reports, mostly in the form of non-integral citations. References mostly take the form of non-reporting structures. In half of the reports the writers refer back in the discussion section to the specific case that is the subject of the case presentation. These references occur generally in Moves 9 and/or 10 but there are also two examples of this sort of reference in Move 11. In the genre analysis, these references are not treated as a return to a case presentation move, an ordering which, as will be demonstrated in 4.4.2.4, occurs with some frequency in the student reports.

The rationale behind handling these references in this way is that, in the professional corpus, the case is mentioned in the discussion section under three specific conditions only. The first is as a very brief aside, for example:

(28) It usually presents with a painless scalp swelling *(Case 1)* or a discharging sinus (*PCTU* - Move 10/2).

(29) However, it has been documented that aneurysms of the vena Galen rarely occur in adults *as in the case under discussion* (AVGA - Move 9).

The second type of reference to the case occurs where the writer uses features of the case to help build up evidence for a niche in Move 9, for example:

(30) *Our patient is unusual as the cysts disappeared so rapidly.* Screen programmes have demonstrated that more than 50% of interval cysts resolve within one year… (*DBCY*).

(31) The evaluation of a patient on contraceptive medication who complains of worsening headaches requires exclusion of CVT by computed tomography or magnetic resonance imaging…. *This case shows that CVT can masquerade for many months as a simple headache* (*CVTH*).

Finally, there are four reports in which either explanations are essayed for features of the case *in relation to* the general discussion, these explanations being marked metadiscoursally (signals of hedging underlined below), or the writer uses features of the case which have already been presented in the case presentation *to illustrate* the general discussion. In the examples below, the explanations in (32) and illustrations in (33) relating to each particular case are shown in italics:

(32) However, because of the strength of the fibrous central tendon, such fistulation is rare. *In our patient it could be postulated that adhesion of the lesser curve of the stomach to the diaphragm with subsequent trans-serosal extension of the tumour and invasion of the central tendon gave rise to the fistula. The patient probably presented just prior to complete fistulation which would explain the absence of a pneumopericardium on the admission chest x-ray. It may be speculated that the gastroscopy actually exaggerated the pneumopericardium and hastened the patient's demise (GPFI* - Move 10/2).

(33) Ultrasonography and CT usually easily detect hydatid disease, with the exception of hydatid cysts in uncommon sites of the body.[3] The diagnosis of the disease prior to surgery is crucial so as to avoid spillage of the parasitic cyst's contents. *In our patient, some diagnostic difficulty was experienced as ultrasonography was not performed.* It is generally agreed that the routine use of ultrasound in the evaluation of thyroid nodules is not cost effective.[4] *However the patient underwent thyroid scintigraphy because it is routine in all our patients with thyroid disease* (*HTGL*, Move 10/4).

All three types of reference to the relevant case discussed above are clearly part of the more general discussion and do not have the aim of providing new information on the case *per se*.

The extract from *GPFI* in Table 4.16 below demonstrates most of the features discussed above. Superscript numbers in the text indicate citations.

Table 4.16 Moves in the discussion section of a professional report *(GPFI)*

DISCUSSION

MOVE 8 Re-establishing territory	
	Whilst the complications of malignant gastric ulcers are usually predictable
MOVE 9 Re-establishing niche	
	only awareness of the rare and invariable fatal gastropericardial fistula occurring as a result of this condition will result in its early recognition and treatment.
MOVE 10 Discussing problem	
STEP 2 *Presenting account of aetiopathogenesis*	The anatomical proximity of the lesser curve of the stomach to the pericardium readily predisposes to fistulation between these two structures. However, because of the strength of the fibrous central tendon, such fistulation is rare. In our patient it could be postulated that adhesion of the lesser curve of the stomach to the diaphragm with subsequent trans-serosal extension of the tumour and invasion of the central tendon gave rise to the fistula. The patient probably presented just prior to complete fistulation which would explain the absence of a pneumopericardium on the admission chest x-ray. It may be speculated that the gastroscopy actually exaggerated the pneumopericardium and hastened the patient's demise.
STEP 3 *Presenting account of clinical findings*	Chest pain, dyspnoea, cyanosis and shock with a pericardial friction rub or occasionally loud bruit or bruit de moulin are the cardinal symptoms and signs of pericarditis associated with a gastropericardial fistula.[3,10] Occasionally these patients present with cardiac tamponade[3,7] as a result of the pericardium which maybe complicated by an empyaema if the diagnosis is delayed.[3,10,11]

STEP 4 *Presenting account of radiological findings*	In the presence of a pneumopericardium, a chest x-ray is usually diagnostic. However a contrast study is indicated to identify the site of the fistula and sometimes as in our patient, to assist with the pathological diagnosis.
MOVE 11 Discussing response to problem	
STEP 1 *Presenting background information*	Gossot[2] identified three features common to gastropericardial fistulae irrespective of the underlying causes previously mentioned: • Frequency of hiatus hernia in the genesis of these lesions,[2,7,9,13] either from an ulcer, oesophagitis or herniated stomach or from surgical complications • Need for aggressive treatment • High mortality - 68% [1,2] Regardless of the aetiology, the reported mortality from this condition ranges between 68 and 85%. [1,2]
STEP 2 *Reviewing information on management*	These extremely ill patients should be aggressively resuscitated, admitted to an intensive care unit, given isotropic support and antibiotics and ventilatory support should be considered.[3] Once the diagnosis has been confirmed, surgical intervention should take place as soon as possible. Letoquart[1] reviewed 52 cases and found that 42 were related to benign conditions. The overall mortality was 85%, although one in two patients survived if urgent surgery was resorted to. The prognosis in this condition may be enhanced with aggressive resuscitation, pericardial drainage and appropriate gastro-intestinal surgery.[1,2,3,10] Although the risks associated with surgery in these patients are extremely high, they are less likely to result in mortality which is almost invariable in the conservatively managed patient.

Move 12, *Stating conclusions,* occurs in only just over half of the reports. There are often deictic references to the report (e.g. *this case report, in this case*) and to the writers of the report (e.g. *we, our results*). Step 1 (in 73% of the conclusions) functions as a summary, reiterating aspects of the report that have already been stated, for example:

(34) This case report illustrates early sutural dehiscence postpneumonectomy accounting for the pericardial defect and the subsequent complication of right sided cardiac volvulus with its dramatic radiological signs (*CTOR*).

(35) The management of VGM is a challenging therapeutic problem for neurointerventional radiologists. The endovascular approach at present represents the best treatment modality, despite technical difficulties and an often unpredictable future outcome in these embolized patients. The present case illustrates in a unique fashion the effectiveness of endovascular treatment (*VGMA*).

Step 2 (occurring in 55% of the conclusions) states aims or makes recommendations. Recommendations are concerned with diagnosis and so the theme is generally represented by references to the pathology and its effects, to radiographic modalities, to the writer as the agent of the diagnosis or the source of the recommendation regarding it. In the example of Step 2 below the themes are highlighted:

(36) **Calvarial TB** is a rare manifestation of a manifestation of a disease that is endemic in South Africa and may be imaged incidentally or because of symptomatology. **Changes in the bone** will be seen on skull radiographs **but a CT head** is required to exclude intracranial TB *(PCTU)*.

For the expert writers, the use of Move 12 to conclude their reports provides an opportunity to review the important facts of the case and to make recommendations. In this way they demonstrate their role as professionals, exercising their judgement regarding the importance of the cases they have presented and in the suggestions they present to the community of

radiologists. These examples of the concluding move show the writer/practitioner as an authority making statements about best practice and, at the same time, a reasonable colleague making suggestions that are based on evidence. The way in which this sort of discoursal space is provided and the relationship between expert writer and reader is suggested is by means of metadiscourse. The use of metadiscourse in the two radiology corpora will be discussed in 4.6.

An examination of the position in the case reports in which the five moves described above appear makes it clear that they rarely show any divergence from the number order given in the analysis. The frequency and order stability of the moves (see 3.3.1.1) are shown in Table 4.17 below and it is evident that Move 12 cannot be classified as a core move since it has too low a frequency.

Table 4.17 Frequency and order stability of moves in the discussion section of professional case reports (total 20)

Move	Frequency %	Order stability %
8	50	-
9	95	90
10	100	62
11	75	73
12	55	100

Because Move 8 is a tied move, as indicated above, it has not been assigned a separate measure of order stability.

4.3.3.5 Conclusion

In this section, I have described the genre structure of the radiology case report as exemplified in the corpus of radiology texts, showing how moves are primarily functionally determined, and also what lexicogrammatical characteristics and text types distinguish them.

It has become clear that the rhetorical work that is a feature of research articles, as discussed in the literature, is an important aspect of the case report as well. The writer of such a report is required to persuade the readers that the report is indeed a contribution to the field of clinical knowledge. Being able to achieve this sort of rhetorical work, as well as knowing how to do so appropriately, is an important aspect of the writer's identity as a

member of the discourse community. It will be essential in the analysis of the student reports below to explore to what extent the students do this type of rhetorical work. Other significant aspects of the professional corpus have been shown to be the careful way in which the discussion of a pathology may be linked with the specific case that has been presented and also the function of the concluding move to present the professional judgement of the writers. The role of the patient as revealed in a transitivity analysis is low on the cline of dynamism in this corpus and this finding too will be compared across the two corpora in order to better understand the sort of writer identity that is realised in each.

The way in which professional radiologists deal with the tensions between the chronological ordering of events and the demands of the case presentation moves was discussed in this section and the status of moves in general was established in terms of frequency and order stability; this will provide a benchmark for describing below how the students handle the flow of the genre from one rhetorical move to the next.

It remains at this point to discuss briefly the structure of the abstract in the professional case reports. The abstract occurs fairly frequently in the professional texts but is not included by any of the students in their assignments. It is, nevertheless, necessary to deal with it here because it will be shown that the moves in the abstract have similar purposes to the moves in the introduction, which may provide one explanation as to why an introduction is not always included in the published case reports.

4.3.4 The abstract in the professional case report

The abstract is usually considered a secondary or agnate genre (Ventola 1994). More than half of the case reports in the corpus have an abstract at the beginning of the report, distinguished from the report proper in the journal by the use of a heading and different font size or type. Because there are no abstracts included in the student case reports, which constitute the focus of this study, it will not be necessary here to report on the features of the abstract in any detail. However, the role of the abstract in supporting the writer's presentation of the rationale for the published report is important for an investigation of identity and purpose in the genre and therefore this section will briefly address these particular issues in the professional case report abstract.

Swales (1990: 179) points out the "detached" or "distilled" status of research article abstracts, which are to some extent independent discourses or, in Huckin's (2001) terms,

mini-texts, but at the same time have the role of indicating the content and structure of the text that follows. There is often in the literature an emphasis on this summarising function of article abstracts (e.g. Bhatia 1993; Graetz 1984; Salager-Meyer 1990; Ventola 1994) and the move structure used to analyse abstracts mirrors sections of the research article.

Nevertheless, the occurrence in abstracts of the type of rhetorical move which does not have a summarising function but is rather characteristic of the introduction has been noted in a number of studies, for example Hyland (2004a) for a range of disciplines, Melander *et a*l (1997) for linguistics, Salager-Meyer (1990) for medical case reports, Samraj (2005) for conservation biology, and Santos (1996) for applied linguistics. Thus, Santos (1996: 485) includes a move, "situating the research", at the beginning of the abstract; together with background information, and this move includes the steps "statement of current knowledge" and "statement of problem". These findings seem to suggest a fairly complex relationship between the abstract and the introduction in research writing and this is borne out in the corpus of professional case reports examined in this study as well, where there is an overlap of rhetorical purposes in abstracts and introductions similar to that observed in research articles. For this reason, it seems that the CARS model is appropriate for describing, not only introductions in the case reports, but abstracts as well, accounting as it does for their presentation of the current research and their more persuasive functions. A strong case for this analysis can be made, based not only on the similar rhetorical purposes evident in abstracts and introductions in medical case reports but also on the fact that writers in the field view them as interchangeable (see Chelvarajah and Bycroft 2004). Adams Smith (1984), in her study of various papers published in the *British Medical Journal*, also notes that the introductions of all the clinical case reports in her corpus have the function of abstracts. Accordingly, since the moves in the radiology abstract share similar purposes with those in the introduction, the former can be analysed using the same three-move structure as the latter.

4.3.5 Conclusion

In this section I have given a detailed account of a corpus of radiological case reports in order to accomplish a description of the genre structure of medical case reports, a genre which has not previously been dealt with in the literature. This description of the genre structure of the radiology case report shows how each move is primarily functionally determined and how the report unfolds by means of these purposes. The analysis represents the description of the first dimension of purpose in the radiology texts and it has

been undertaken in order to provide a benchmark for the description of a corpus of student case reports so that the purpose and identity of the writers may be explored. Particularly important to an understanding of writer purpose and identity is the careful way in which the professional writers establish a research space or niche for their clinical contribution and how they use the conclusion of the case report to present a professional persona in their recommendations to the community of their peers.

4.4 COMPARISON OF GENRE STRUCTURE OF STUDENT AND PROFESSIONAL CASE REPORTS

Having in the previous section described the genre structure of the medical case report as evidenced in a corpus of radiology articles and suggested important ways in which the writers show their professional identity, I will now explore to what extent the student writers have achieved taking on a similar identity in their pathology case reports. I do this by focusing on the extent to which the rhetorical functions discussed above and other aspects of the medical case report are present in the students' assignments. In this discussion I draw also on the comments made in interviews by the students and their lecturer in order to explain the purposes the student writers brought to their task.

In this section, I first describe the move structure used by the students (4.4.1) and then focus on particular aspects of the case report that reflect writer identity and differences between the two corpora with regard to these (4.4.2). Spelling errors have been corrected in the examples drawn from the student texts.

4.4.1 Moves in the student corpus

The student case studies tend to show the same general basic structure as the professional articles, comprising introduction, case report, discussion and sometimes conclusion, although these headings are not always used and the ordering of the sections is not always what might be expected. Thus, for example, in *ACR*, *MSY* and *MBL* the discussion commences immediately after the introduction and before the details of the case are reported. The influence of what is a more familiar genre, that of the essay, affects the move order in some reports and this will be addressed below. With regard to headings, there are generally many more in the student texts, as exemplified in Table 4.18 below, which lists the headings and sub-headings found in *BME* in relation to the genre moves and steps represented by these sections. The use of headings relating to individual moves and steps

differs from the practice of the professional reports, where headings refer rather to the main sections, as discussed in 4.3.1. This particular example follows the same order of moves and steps as a professional report, although various moves are characteristically omitted, as will be discussed in 4.4.2, and Move 4a (*Reporting background*) is included as an additional move, as explained below.

Table 4.18 Headings in example of student case report (*BME*) indicating their relation to genre structure

Headings in *BME*	Moves and Steps
1 Introduction	**Move 3** *(Presenting present work)*
2 Patient history	
2.1 Social history	**Move 4a** *(Reporting background)*
2.2 Clinical history	**Move 4** *(Reporting problem)*
2.3 Diagnosis of disease	**Move 5** *(Reporting investigation of problem)*
2.4 Treatment	**Move 6** *(Reporting response to problem)*
3 Hodgkin's lymphoma: the disease	**Move 10** *(Discussing problem)*
3.1 Definition	Step 1 *(Presenting background information)*
3.2 Aetiology genetic factors	
3.3 Anatomy	Step 2 *(Presenting account of aetiopathogenesis)*
3.4 Clinical aspects	
3.5 Pathology and spread	Step 3 *(Presenting account of clinical findings)*
3.6 Effects	Step 2 *(Presenting account of aetiopathogenesis)*
	Step 6 *(Presenting account of sequelae/complications)*
	Move 11 *(Discussing response to problem)*
3.7 Classification	Step 1 *(Presenting background information)*
3.8 Treatment	
3.9 Prognosis	Step 2 *(Reviewing information on management)*

An examination of the multiple headings in the discussion section of BME above suggests the influence of the textbook genre since the headings relate to each individual step, as they would be encountered in a textbook, whereas the headings in the case presentation section, not modelled on an existing text, provide a less detailed breakdown. The influence of the textbook on the student writing is taken up at several points in the discussion below and is confirmed by what students had to say in the focus group interviews (see Appendix 4).

The moves that occur in the student corpus are indicated in Table 4.19. In this table, the presence or absence of a particular move within a section is indicated by the symbols + or – respectively. The numbering of the moves relates to those described for the professional case reports. An additional move, labelled here as Move 4a, is included to account for the importance of the social history of the patient in many of the student texts (further discussed in 4.4.2.6).

None of the student writers includes an abstract with her assignment but there is an introduction in every report. This contrasts with the situation noted in 4.3.4, where abstracts

appear in more than half of the professional corpus although, as discussed, their functions appear to overlap with those of the introduction. Table 4.19 reveals that the most frequent move in the introduction section is Move 3, (*Presenting present work*). The low frequency of Move 2 (*Establishing niche*) and the absence altogether of Moves 8 (*Re-establishing territory*) and 9 (*Re-establishing niche*) in the student reports constitutes a significant difference in the two corpora and will be discussed and explained in 4.4.2. The differences between frequencies of Moves 11 (*Discussing response to problem*) and Move 12 (*Stating conclusions*), as compared across the two corpora, are also discussed in this sub-section. Apart from these moves, the pattern of frequency of occurrence of moves is similar to that found in the professional corpus.

Table 4.19 Distribution of moves in student case reports

Report \ Move	Introduction			Case presentation					Discussion				
	1	2	3	4a	4	5	6	7	8	9	10	11	12
ABC	+	+	+	-	+	+	+	+	-	-	+	+	-
ACH	+	-	-	+	+	+	+	+	-	-	+	+	+
ACR	+	+	+	+	+	+	+	+	-	-	+	+	-
AMA	+	-	+	+	+	+	+	+	-	-	+	+	-
APF	+	+	+	+	+	+	+	+	-	-	+	+	-
ARF	-	-	+	+	+	+	+	+	-	-	+	+	-
ASC	+	+	+	+	+	+	+	+	-	-	+	+	+
BME	-	-	+	-	+	+	+	+	-	-	+	+	-
HDI	-	-	+	+	+	+	+	-	-	-	+	+	-
HYD	+	-	-	-	+	+	+	+	-	-	+	+	-
MED	-	-	-	+	+	+	+	-	-	-	+	+	+
MEN	+	-	+	-	+	+	+	+	-	-	+	+	-
MSY	-	-	+	+	+	+	+	+	-	-	+	+	-
OSA	+	-	+	+	+	+	+	+	-	-	+	+	+
OST	+	-	+	-	+	+	+	-	-	-	+	+	-
PDI	+	+	+	-	+	+	-	+	-	-	+	+	-
RHA	-	-	+	+	+	+	+	+	-	-	+	+	-
SBI	+	-	+	-	+	+	-	-	-	-	+	+	-
VZV	-	+	+	-	+	+	+	-	-	-	+	+	-
WTU	+	-	+	-	+	+	+	+	-	-	+	+	-
% of reports	65	30	90	55	100	100	90	75	0	0	100	100	20

It appears that little direct instruction was given to the student writers with regard to genre structure when the pathology assignment was set. Guidelines given for the assignment (see Appendix 5) are listed in the form of specific outcomes. The outcomes most clearly related to form and language include “attention to detail regarding the technical aspects of assignment writing”, “signs of planning and organisational skills”, and “signs of logical thought”. Having an introduction was a requirement for the case reports (in order to

"[i]ntroduce topic, serve purpose, supply information of what to expect in assignment, innovative") but no other reference is made in the rubric to specific structural requirements.

A study by Freedman (1994) shows that law students exposed to the kind of thinking and arguments relevant to a new discipline and then faced with writing an assignment that provided a rhetorical exigency and a context for writing in that discipline were able to produce the appropriate genre without any specific writing instruction (but cf Samraj 2002b). The students referred to in my study, writing their case reports in the context of a department of radiology in a hospital, produced a recognisable genre, with moves that realise the majority of the purposes found in the professional reports (with some important exceptions, which I will discuss below). However, it is not altogether clear whether this is the result of the exigency provided by the task or the models of medical writing followed by the student writers. One of them described her understanding of the structure of the case report in one of the interviews (in the transcription of which, the student respondent is identified by means of a letter and the interviewer's questions are shown in italics) as follows:

F: …you talk about a particular person, something that's happened to a particular person, you don't generalise on the disease, you know, throughout the whole thing…you talk about the patient and then you say more about the disease, you get information from the books and everything about the disease.
And did [your lecturer] explain that to you, when she said you're going to write a case study?
F: No.
….
Did you see any case studies that anybody else had written?
F: No.

Another student found that the headings in textbook discussions of the relevant pathology were useful in providing a list of contents:

K: I think [the lecturer] did tell us a little bit about how a case study should look, but not really, it was mostly free to do what we wanted to….What was nice about the case study was that they didn't give us the contents, they didn't say you had to have the history, the…like a set out thing. What I did was I looked for a patient, and I looked if I could find everything on her, if I could find all the X-rays, could I find everything I wanted, and then I picked the patient and then I went and I looked up her illness, and from everything I looked up, I took subjects out of that, all the information I could get, I took my contents, my page of contents from that. Like this said the history of these patients are usually this, and I made one of my headings history, and then as you get the information, that's how I compiled my contents.

One of the students found assignments from previous years useful as models:

B: I found other case studies to see how they set things out.
S: It made it a bit easier looking at other case studies first.

Where did you find other case studies?
B: From previous years, people that did it in previous years, we had a look at theirs….
K: That's why I didn't enjoy it as much, because I didn't see anything from previous years or anything. I just had to do it from the start, from scratch. I didn't have any idea…

None of the students had thought of using a published case report as a model although some at least were aware that their own lecturers were publishing in journals, as evidenced in the two extracts below:

B: …there are a lot of staff that we work with that actually write case studies in our Society of Radiographers magazine that comes out every six months or so. And I think, you know, might be valuable for us one day if we have to write a case study so that we've sort of got an idea of how to do it.

Now have you ever read a case study in a radiography journal?
P: I read one they wrote about the Vein of Galen…. It was one of the staff who wrote it.
So you'd read case studies in journals before you wrote your case study?
P: By the time I wrote my case study I'd forgotten about that one!

B's remark above indicates how little she considered her assignment to be related to this sort of professional writing. This is corroborated by other students, as for example in the following:

Did you get hold of anybody's case studies or any published case studies to see what a case study looks like?
F: No.
Would you be able to find case studies anywhere?
F: In medical journals you get case studies…but not really of interest to read, maybe I'm just passing and I see a case study.
Do radiographers write case studies?
G: There was one published in the Society of Radiographers magazine.
So before you wrote your case study you'd seen a case study?
G: Yes, I've seen it, but it was too short.
Why are they different from your case studies, do you think?
F: 'Cause they are not for marking, just for interest sake.

The fact that the students see their case reports strictly as assignments, with requirements of a greater length and rewarded by means of marks, indicates a different purpose and role from that of the published medical professionals, whose case reports, as described in 4.3.3, clearly seek to display the identity of a professional able to make a contribution to clinical knowledge.

Interestingly, although the lecturer who set the assignment did in actual fact feel that she had suggested the conventional case report structure in terms of the main sections in informal discussions, she appears not to have formalised this in the assignment rubric because she felt it was self evident:

L: In one of our discussions I do say right there's got to be an introduction, and then as I've indicated we then talk about the patient and the clinical situation and then we follow that on with your research from the library…. But it's not intentional, put it like that, it's not intentional, it just makes sense.

4.4.2 Comparison across the two corpora of aspects reflecting writer identity

In this section various aspects of the professional and student corpora are compared and conclusions regarding writer identity are drawn. The moves that actually occur in each corpus and their frequency of occurrence and order stability are first presented (4.4.2.1). Then the status of the moves across the corpora is compared and the establishment of a research space in the reports is dealt with (4.4.2.2). The way in which the introductory moves of the student texts unfold, displaying the influence of the essay genre, as compared to the published texts, is discussed (4.4.2.3) and move order stability in the two corpora compared (4.4.2.4). The text type found to be characteristic in the case presentation section of professional reports, namely the Problem-Solution pattern, is described as it appears in the student texts (4.4.2.5) and, finally, a comparison of the moves found in the case presentation section (4.4.2.6) and the discussion and conclusion section (4.4.2.7) in each corpus is presented.

4.4.2.1 Identifying aspects reflecting writer identity

Table 4.20 Comparison of frequency, stability and average length of moves in professional and student case reports

Move	Professional			Student		
	Frequency %	Order stability %	Average length	Frequency %	Order stability %	Average length
1	**82**	**60**	72 (8.4%)	65	13	66 (4.1%)
2	**91**	**50**	40 (4.7%)	35	29	17 (1.0%)
3	**73**	**75**	19 (2.2%)	**90**	**14**	59 (3.6%)
4a	-	-	0	55	82	99 (6.1%)
4	**100**	**71**	60 (7.0%)	**100**	**25**	214 (13.2%)
5	**100**	**50**	129 (15.0%)	**100**	**35**	165 (10.2%)
6	80	32	35 (4.1%)	**90**	**30**	85 (5.2%)
7	65	*	36 (4.2%)	75	43	76 (4.6%)
8	50	*	45 (5.2%)	0	-	0
9	**95**	**90**	39 (4.5%)	0	-	0
10	**100**	**62**	242 (28.2%)	**100**	**41**	620 (38.2%)
11	**75**	**73**	87 (10.1%)	**100**	**28**	248 (15.3%)
12	55	100	54 (6.3%)	20	75	74 (4.6%)

Although the majority of the rhetorical moves present in the professional papers also appear in the student assignments, as demonstrated in Table 4.19, a comparison between the

frequency and order stability of the various moves in the two corpora shows interesting differences. These figures appear in Table 4.20 above together with comparative figures for average move length. Order stability figures are not provided for tied moves. The figures in the shaded sections indicate core moves.

4.4.2.2 Comparison of the status of moves and the establishment of a research space

There is a clear difference in the status of the moves in the two corpora as shown in Table 4.20. Only Moves 3, 4 and 5, together with Moves 10 and 11, are core moves in both corpora (with either a frequency over 85% or a frequency of at least 65% together with an order stability over 50%). The conclusion (Move 12) is not a core move in either corpus because its frequency is too low. In the student corpus there is no equivalent to Moves 8 and 9 and there are, in this corpus, four moves, in addition to Move 12, that do not qualify as core moves. This is because Moves 1 and 7, although they have frequencies equal to or greater then 65%, both have an order stability below 50% and Moves 2 and 4a have a frequency below 65%. Moves 1 and 2, it may be noted, are also on average less than half or quarter the length of the corresponding moves in the professional corpus respectively. Move 7, an evaluative move, is not tied to Move 6, unlike in the professional corpus (see 4.3.3.3). The reasons for this will be discussed in 4.4.2.4. Move 6 is a core move in the student corpus although not in the professional corpus. Move 4a occurs only in the student corpus.

At this point, I will deal with the status of Moves 1 (*Establishing territory*) and 2 (*Establishing niche*), which, together with Moves 8 (*Re-establishing territory*) and 9 (*Re-establishing niche*), have the important role in the professional reports of announcing to members of the discourse community that there exists a niche in clinical knowledge or experience (see 4.3.2). This indication of the rationale for the report is achieved by first presenting the relevant pathology in terms of its significance and indicating that it is well established in clinical medicine (in Moves 1 and 8). Subsequently, the particular niche that is to be filled is established (in Moves 2 and 9). It was demonstrated in Table 4.15 that there is generally a careful relationship built up between these moves in the professional reports. The niche that is established or re-established in this way is the rarity (or even uniqueness) of the pathology as reflected in the literature and/or the existence of some diagnostic difficulty or problem associated with the condition.

Table 4.21 Summary of moves in the student corpus providing a rationale for the case reports

Title	Introduction			Other
	Establishing Territory (Move 1)	**Establishing Niche / Introducing case (Move 2)**	**Presenting present work (Move 3)**	
ABC	**Interesting** condition ("particularly interesting as it is an idiopathic condition and can occur in any bone of the body")	**Rare** condition.		
ACH	**Unexpected** cultural beliefs of *community* resulting in **serious** consequences ("it is surprising…they will only think about doctors when sickness deteriorates") *Patient as example* of this attitude to illness and its **serious** consequences ("took him many years to realise that coming to the doctor is the right thing to do…no other alternative…the sickness deteriorated… until it was difficult for him to stand").			**Interesting** ("case study is interesting") **Serious** outcome was lesson to writer ("touched me because of the outcome") of not neglecting medical advice. **Move 12**
ACR	**Important role of radiography** in diagnosis ("essential role in diagnosing")	**Rare** disorder.		
AMA	Background information and statement that this is **serious** condition ("if it goes undetected it could cause *serious* problems")			
APF	Background information and claim that cultural beliefs in black rural *communities* result in avoidance of medical assistance and this needs to change.	**Rare** type of tumour. **Rare** presentation in adults ("not very common kind especially in adults…very interesting case…situated in a site where it is usually found in children")	*Patient is example* of this attitude and its **serious** consequences ("is one of those people…left her blind").	
ARF			Diagnosis and treatment **complicated** by patient's religious beliefs ("complicated")	Diagnosis and treatment **complicated** by patient's religious beliefs ("problem"). **Move 7**
ASC	Background information and statement that condition **generally** occurs in *brain*	**Rare** presentation in *spinal cord*.		**Serious** condition ("damage...could be permanent and endangers patient's life". **Move 12**
BME			**Serious** condition ("frightening disease")	
HDI				
HYD	**Serious** nature of brain disorders ("lifethreatening consequences")			
MED				
MEN	Background information and statement that this is a **serious** condition ("can become very severe with any serious complications")			**Serious condition** ("a rather dangerous disease…often fatal"). **Move 11**
MSY				
OSA	Previously people died from **serious** diseases because of lack of medical knowledge. They can die from diseases and tumours if they neglect to take medication or to keep appointments. Medical advances now allow for the treatment of tumours ("really dangerous and result in death…nowadays there are some methods done")		**Serious** condition and most common bone tumour ("most dangerous especially in young children…dangerous cells produce bone matrix…most common primary malignant tumour of bone")".	**Serious** condition which must be treated early and not neglected ("dangerous tumours which need an early treatment…patient must not default"). **Move 12**
OST				
PDI	*Common* chronic disease of skeletal system in *middle age and beyond.*	***Rare*** in *younger patients* ("what makes Patient X's case interesting is that he is a thirty one year old male…")		
RSA				
SBI				
VZV		**Rare** in *adults* and very **rarely** so **serious** that patient needs to be hospitalised.		
WTU	Cancer can be a death sentence and while there are advances in treatment, it is still a feared disease (**serious**). Cure depends on stage at which it is diagnosed.		Patient in this case is fortunate as he will be cured.	Prognosis not as good as in *children* because pneumonia is **serious**. **Move 11**

KEY	
Example	**Meaning**
serious	Repetition
community/patient	Contrast
interesting	Indication of significance

The frequency figures in Table 4.20 suggest that the student writers do not claim to add to clinical knowledge in the same way. There are no examples at all of Move 9 in the student corpus. It is this move, together with Move 2, (which in this corpus is present in only 35% of the texts), that has the function of establishing a niche in clinical medicine in order to justify the case report. It was established in 4.3.2 that at least one of these moves occurs in each of the professional reports, with both appearing in almost half the corpus (see Table 4.5). The absence of these important moves in the student corpus indicates that these rhetorical purposes are generally not achieved. The fact, moreover, that Move 3 is the most frequently occurring move in the student introductions, in contrast to being the least frequent in the professional corpus, confirms the claim that the student writers are not usually concerned with providing a rationale for their reports but rather with introducing the case.

Nevertheless, the student writers do indicate a range of reasons for the significance of their reports and the ways in which they do this is summarised in Table 4.21 above. Cells in the table are only filled when there is an indication of significance in the move referred to. Blank cells do not signify that the move does not occur but rather that the significance of the pathology is not stated. Repetition of ideas is indicated by means of underlining and contrast by means of italics; indications of significance are in bold.

Table 4.21 shows that although most of the reports from the student corpus (70%) indicate at least one reason for the interest or importance of the case, only six (30% of the corpus) include a claim of rarity, the most frequent strategy used by the professional writers for establishing a niche for their reports.

Even where the claim is made that the pathology is rare, the student writers do not always give this more than a brief mention, as in the extracts from the introductions below where Move 2 is embedded within Move 3, the move in which the case is announced:

(37) The patient to be discussed in this case study suffers from a *rare* bone cyst called an aneurysmal bone cyst (*ABC*).

(38) In this study, Acromegaly is discussed in more detail to understand the principle of this *rare* endocrine disorder (*ACR*).

In some of the assignments the pathologies or cases described are declared to be interesting because of the range of possible presentations (*ABC*), because of personal lessons learned (*ACH*) or because of the important role of radiography (*ACR*). Other student writers indicate that their cases are examples of unexpected attitudes (*ACH, ARF*) or of serious diseases (*ACH, AMA, HYD, MEN, OSA, WTU*). Although a high mortality rate,

indicating the serious nature of a particular pathology, is also frequently mentioned in the professional reports, it is nevertheless not adduced as a niche but rather as an aspect of the well established territory within which the niche can be identified.

Only two of the reports with Move 2 make any attempt in the introduction to establish territory that is relevant to the following claim and so to establish a contrast between the most common occurrence of the pathology and the presentation featured in the report. These moves are shown in Table 4.22 below with signals of contrast italicised:

Table 4.22 Moves 1 and 2 showing contrasting functions in two student case reports

Report	Move 1	Move 2
ASC	Astrocytoma is a tumour made up of cells called astrocytes in the Central Nervous System. It occurs *mostly* in the *cerebral hemisphere* of the brain. In adults it originates mostly in the cerebrum and in children in the cerebellum.	*Very rarely*, Astrocytoma can occur in the *spinal cord*.
PDI	Paget's disease (osteitis deformans) is one of the *most common* chronic diseases of the skeletal system. It occurs in about 3% of all persons *older than forty years*.	It *rarely* occurs in people *younger than that*. What makes Patient X's case interesting is that he is a *thirty one year old* male in which the disease was first diagnosed when he was *only twenty seven years old*.

In the focus group discussions with the student writers, it was clear that they had understood the need to find a case which was of interest and that this was generally equated with rarity:

M: [The lecturer] wanted something extra, she had this list and she wanted something different.
B: I think there were marks for that as well, on how interesting it was.

R: When I was in the hospital, I asked them, you know, if they get something that is unusual, they must just tell me, something that's rare, cause [the lecturer] said she specifically wanted a thing that is not so common.

B: I actually went from ward to ward and I'd speak to the sisters and the doctors and I'd find out what interesting cases they've had…and I'd choose the most interesting one from there…you know something that's not too common.

M: Mine's not very unusual, but the fact that she had only one kidney, and the clinical history was interesting, the fact that they didn't know what was wrong, they were jumping between…what is it, is it this, is it that, and they couldn't find out why she was having problems.

Some of the students experienced problems with selecting a suitable case:

H: No, I didn't get something that was rare. I got a common disease because there were no interesting things.

K: I tried going ward to ward but it didn't work…so I went to radiotherapy and they told me they had an interesting rare case…. Turns out it's not as rare, it was rare at Provincial!

Thus it appears that the necessity of choosing a case during the period of the hospital placement restricted the students in ways that would not be applicable to permanent medical staff, who could choose to write up unusual cases encountered during the course of their duties, cases that had already been resolved.

The expectations of the reader for whom the students wrote, namely their lecturer, also provided a different context for their reports. For example, there was no expectation that the students would confine themselves to pathology related to radiography. In the following extract from the transcript of an interview with the lecturer, she explains her attitude towards the choice of a case:

> L: …So it's wonderful if they can find something. I remember a couple of years back, one of the students found a patient suffering from Creutzfeldt-Jakob (which is that mad cow disease) who was in Provincial Hospital for a very long time. I mean, that's nothing to do with radiography but it's wonderful that she found such an unusual case. A student once did a study on a patient with leprosy…. Nothing to do with radiography.

This seems to suggest that one of the intentions in setting the assignments for the students is the development of a general medical knowledge rather than necessarily a specific radiological focus. This perhaps goes some way to explaining the difference status of Move 6 (*Reporting response to problem*) in each corpus. This move, which describes the management of the patient, qualifies as a core move (with a frequency over 85%) in the student corpus, while falling short of the criteria for a core move in the professional corpus (with a frequency less than 85% and an order stability of less than 50%). This reflects the fact that the focus is on diagnosis rather than on treatment in the professional reports, even though sometimes treatment requires radiological control. This focus does not obtain in the student reports nor, obviously, in the pathology textbooks on which the students drew for information. Thus the identity demonstrated by the students may be more generally associated with the medical field in general at this stage than consistently linked with the field of radiology.

4.4.2.3 Influence of the essay genre in the introduction section of student case reports

Interestingly, the adoption of an identity allied to Western medicine is very specifically expressed in two of the student reports (*ACH* and *APF*) although this identity is not that of a practitioner. I will discuss one of these reports in some detail since an analysis of the introduction and conclusion of this particular report also highlights the way in which the student draws (with some skill) on a familiar literacy practice and existing discourse

repertoires, what Carter (1990) would see as general knowledge about writing, and thus displays a rather different writer identity, namely that of a student familiar with school literacy.

The writer of *ACH* frames her case report as a critique of the attitude of "black people" to Western medicine. She follows a move structure in her introduction characteristic of the essay genre as described by Henry and Roseberry (1997):

Table 4.23 Example of moves characteristic of the essay genre in the introduction *(ACH)*

Introduction Moves	Strategies
Introduction to the topic	***Make a general statement*** *Statement regarding traditional belief in witchcraft:* "It is surprising that most black people are unable to distance themselves from believing that there is witchcraft and they always think that they are bewitched whenever something wrong happens to them. What is worse there are even those who will think that they are bewitched when they are not employed thinking that there are people who do not want them to be progressive in their lives."
Narrowing the focus	***Introduce a problem*** *The problem traditional belief poses for the treatment of diseases:* "The people who are obsessed with this belief ignore illnesses because they think they will be cured by herbs. They will only think about doctors when sickness deteriorates. Patients who are experiencing all the familiar symptoms of tuberculosis will only visit the hospital when they are practically dying as they believe that they are not ill but *bewitched."*
Stating the central idea	***Ask a question and provide an answer*** *Q: When will people understand that pain is a symptom of disease?* "When will people get it into their minds that pain itself means that there is an abnormality taking place inside the individual's body." *A: It took many years in the example provided by the report:* "In the case of Mr S it took him many years to realise that coming to the doctor is the right thing to do. I think he visited the doctor because there was no other alternative and he was afraid of being unable to walk. Despite all different kinds of herbs he used the sickness deteriorated until his legs became weak and it was difficult for him to stand. I was surprised when he told me that his problem started during his childhood and nothing was done to find out what was the cause."

The themes chosen by the writer indicate a progression from "black people", through people who believe in witchcraft and patients with TB to Mr S himself, who is introduced by means of a marked theme as a relevant example of the attitude the writer has been discussing. Another marked theme brings into prominence the writer's attitude towards the perceived inefficacy of traditional medicine. Interpersonal themes (e.g. *it is surprising, what is worse*) express the reaction of the writer to the attitudes to witchcraft and Western medicine she observes. The thematic development is shown in (39) below, with the themes indicated in bold, interpersonal themes in italics and the marked themes by underlining:

(39) *It is surprising* **that most black people** are unable to distance themselves from believing **that there** is witchcraft **and they** always think **that they** are bewitched **whenever something wrong** happens to them. *What is worse* **there** are even those who will think **that they** are bewitched **when they** are not employed thinking **that there** are people who do not want **them** to be progressive in their lives. **The people who are obsessed with this belief** ignore illnesses **because they** think **they** will be cured by herbs. **They** will

> only think about doctors when sickness deteriorates. **Patients who are experiencing all the familiar symptoms of tuberculosis** will only visit the hospital **when they** are practically dying **as they** believe **that they** are not ill but `bewitched'. **When** will people get it into their minds that pain itself means that there is an abnormality taking place inside the individual's body. **In the case of Mr S** *it* took him many years to realise that coming to the doctor is the right thing to do. *I think* **he** visited the doctor **because there** was no other alternative **and he** was afraid of being unable to walk. **Despite all different kinds of herbs he used** *the sickness* deteriorated **until his legs** became weak **and it** was difficult for him to stand (*ACH* – Move 1).

Just as the introduction in this report achieves rather different rhetorical functions from those found in the introductions of the professional case report, the conclusion does not easily fit into the structure of Move 12 (*Stating conclusions),* as found in the professional case reports. It seems closer to the essay conclusion described by Henry and Roseberry (1997) with its two moves, namely, *Commitment to the central idea* and *Expansion*, as demonstrated in Table 4.24 below:

Table 4.24 Example of moves characteristic of the essay genre in the conclusion *(ACH)*

Conclusion Moves	Strategy
Commitment to the central idea	***Show the consequences*** *by indicating the tragic outcome of neglect:* "This case study is interesting and it also touched me because of the outcome. Mr S. was convinced that his condition was improving and he hoped to be with his family very soon. He even gave me his home telephone number saying that I'll have to phone him at home if I still want some more information because to him it seemed as if he was not going to be in hospital for a long time. He was so optimistic."
Expansion	***Give a personal response*** *by stating that the writer has learned not to neglect health problems:* "I learnt that I'll have to pay attention to my aches and pains before it is too late."

The writer first, somewhat indirectly, underlines the consequences of the reluctance to seek medical help exemplified by the patient and then presents a personal response. Significantly the lesson learned seems to have been as potential patient rather than as practitioner.

In the student assignment just discussed, discourse choices reveal the voice of general medicalised knowledge reflecting on naïve beliefs. In other words they reveal an identity less than professional. It may, however, be asked to what extent a professional identity is actually open to the student writers. Bearing in mind that the radiographer has the role of a technician rather than a medical specialist, it is not surprising that the student writers do not see themselves as making claims regarding diagnostic practice such as has been noted in some of the professional articles and this will be taken up in discussion of how metadiscoursal choices reveal the writer identity of the students in 4.6.2. Nevertheless, it

would, dependent on the types of cases available in their hospital during their period of training there, have been possible for the students to claim the rarity of a pathology or its particular presentation in order to establish a niche for their clinical contribution and, indeed, one of the requirements specified in the assignment rubric provided to them was that they should choose a patient who was "interesting, stimulating, unusual" (see Appendix 5). Thus most of the reports make explicit reference to particularly interesting or unusual features of the case. What is generally lacking however is the careful building up of a rationale through the genre structure by means of repetition and contrast as achieved by the professional writers and the important focus on rarity (see Table 4.15). The students do not at this stage understand how to position themselves as writers and creators of clinical knowledge within their new field.

4.4.2.4 Comparison of move order stability

The second aspect of the comparison between the two corpora in Table 4.20 that requires comment is that the move order is consistently less stable in the student corpus than in the professional reports. I shall examine the possible reasons for this by looking first at the chronology of the case presentation section.

The fact that the basic move order in the case presentation is influenced by the chronological order of events in the professional papers has been discussed in 4.3.3.3. The chronological ordering of events which characterises this section is evident in the student corpus as well. The writer of *ACH*, for example, details each step of the patient's story after he was admitted to the hospital with a suspected hydatid cyst. First given drugs for pain (Move 6), the patient went through a number of tests (Move 5). A blood transfusion was administered (Move 6), followed by another series of tests which allowed a diagnosis of achalasia to be made (Move 5). In a similar way *ARF* cycles through reiterations of Move 5, indicating an investigation, and Move 6, detailing the management, as the writer narrates the confused process that preceded the diagnosis and the various attempts at management, which were complicated by the patient's unhappiness with the use of blood transfusions.

Both professional and student writers draw on case notes in constructing their case presentation in the report. Hunter (1991: 84) calls the notes, or patient's chart, "the kernel of medical narrative". As she explains:

> The "write-up" in the chart records and thereby establishes the patient's medical history as he or she has reported it, the findings of the physical examination, test

> results, a list of problems in rank order, and entries for therapy started and discontinued, consultations requested and carried out. Daily progress notes [are included]….

An examination of the narrative in many of the student texts suggests a rather too faithful adherence to the details of the case notes and specialists' reports, sometimes transcribed complete with the original headings, omitted grammatical items and use of the present tense, as seen in the extracts below (wording clearly marked as being derived from sources appears in bold):

(40) The report of the C.T. scan of the patient's chest demonstrated a large mass filling almost 2 thirds of the right hemithorax extending form the thoracic inlet behind the trachea downwards to the right. **It has…. The features are consistent with a massively dilated oesophagus due to Achalasia** *(ACH* -, Move 5, Step 3).

(41) A biopsy on the necrotic bone tissue was performed with the following findings:
Macroscopic
The specimen labeled from the right femur neck consists of…. *(ABC*, Move 5, Step 4).

(42) CT-SCAN REPORT:
There is marked hydrocephaly. All ventricles are dilated. The drain is seen in right lateral ventricles. COMMENTS: Gross hydrocephaly. Drain is probably blocked (*HYD*, Move 5, Step 3).

(43) iii SKULL REPORT
Only two views were available and **it shows no bony destruction or intracranial abnormality demonstrated and skull appears normal** (*OSA* - Move 4).

This reliance on case notes and reports demonstrates that the student writer is not generally able to take on the identity of a member of the medical team and does not have the knowledge or authority to draw together and narrate, as a fairly seamless whole, the findings regarding the patient. Nor does the student always show evidence of grasping the fact that "the presentation and discussion of a case are not simply the recitation of a series of facts and findings" (Atkinson 1995: 98). The use of poorly integrated material from the case notes tends to add to the comparative length of the moves in the student case presentation and, in addition, adherence to the chronology of the narrative, with little attempt at selecting relevant details or weighing evidence, must affect the order stability of the moves in the student corpus compared with that of the professional corpus.

The difference in order stability of the moves in the student corpus is also related to the fact that the majority of the students do not make a clear separation between sections of the reports, despite this being suggested by their lecturer (see Appendix 4). There is evidence of this in just over half of the reports. There are two reasons for this tendency towards

integration between sections of the report.

The first of these is the way in which the student writers make general use of specific details of the case to comment on aspects of the pathology or vice versa. In 4.3.3.4 it was established that it is in an accepted practice in the journal reports to refer to the case in the discussion section. However, this generally occurs in very specific ways, as detailed in that section, and such references have not been analysed as commencing a new move in the structural analysis. There is only one instance (in *AVGA*) in which what clearly functions rhetorically as one of the moves from the case presentation section (Move 5, *Reporting investigation of problem*) is included in the discussion section of a professional report in order to introduce new information. By contrast, in the student corpus, seven reports show the occurrence of a cycle, often in iterations, from a particular move in one of these sections to a move in the other. In two of the reports (*MBL* and *OST)*, the entire body of the report is organised according to the type of pathology, the relevant investigations and the treatment of the condition and each section includes particulars of the case under consideration as well as more general discussion. The author of *ACH* treats the career of her patient as central and provides explanations for the diagnosis to indicate to her reader that she understands the interpretation of the test results, returning to the particular case to take up the story of this patient's progress (or lack of it) subsequent to diagnosis. Even when the initial narration of the patient's story forms a clearly separate section, the discussion may be regularly interspersed with new information about the specific case. Thus *MSY* has a long section which consists of a recurring cycle of description of the radiological investigation used to diagnose the patient (Move 5) followed by a general discussion of that particular imaging technique (Move 10). The writer of *VZV* gives details of the various signs and symptoms of the patient (Move 4), providing an immediate short clinical explanation (Move 10) for each. *AMA* and *APF* both show a recurring cycle of discussion of available therapies (Move 11) followed by details of the patient's experience (Move 6).

This integrative approach would appear logical and indeed must be useful heuristically. It allows the student to understand (and to demonstrate to her reader, the lecturer) the necessary connections between, for example, the presenting signs and symptoms or processes followed in the hospital, on the one hand, and the clinical explanation for these, on the other. However, this type of structure is not in accord with the strict conventions which have become formalised in the medical case report, in which the account of the case "proceeds in strict chronological order without hypotheses or scientific explanations" (Hunter 1991: 96). Hunter holds that this convention is vital in understanding medical knowledge

since it reflects the status of the individual case in medicine as basic to clinical knowledge and medical practice.

The second reason why the student corpus tends to demonstrate a blurring between sections of the report is to do with the way in which some of the writers choose to conclude their reports. In the professional articles, the writers either conclude with Move 12 (*Stating conclusions*), as stated in 4.3.3.4, or simply end their report after Move 11 (*Discussing response to problem*). These are the only patterns that occur. About half of the student writers follow suit, with 15% of the student reports concluding with Move 12 and 40% with Move 11. However, the other student reports end with Move 7, in other words, a prognosis or an evaluation of the patient (seven instances), or actually introduce an account of some other new aspect of the topic with Move 10 (two instances). It may be that there is a tendency to provide a prognosis or evaluation of the patient (Move 7) as a conclusion because, once again, the students are drawing on essay literacy in which *Evaluate* and *Make a prediction* are strategies commonly used in conclusions (Henry and Roseberry 1997). This has an obvious effect on the order stability of the moves, creating a further cycle of movement between the particular case and the general discussion.

Examples of concluding sections occurring in the student corpus show a range of purposes. The first is an evaluation of the situation after intervention, for example:

(44) The surgery was successful. A biopsy of the tumour was performed and the features was compatible with a pituitary adenoma. After several weeks in hospital the patient was discharged on insulin and hormone replacement therapy (cortisone - acetate). He is currently being followed up by the physicians and neurosurgeons. Currently his diabetes is much better controlled and he does not suffer from debilitating headaches and backache anymore and leads a normal life (*ACR* - Move 7/Step 1).

Another way of concluding the report is the prognosis for the patient, for example:

(45) The patient covered in this case study is given 5 years to live unless the patient accepts a kidney transplant. A kidney transplant could mean full recovery. However, the patient's spiritual beliefs and the availability of kidneys for transplantation for specific tissue types is going to be a problem *(*ARF - Move 7/Step 2).

The presentation of relevant research regarding complications of the pathology can also conclude the report, for example:

(46) …It is unusual nowadays to see a patient with an abnormally large head, although even with successful shunting, most patients still have some intellectual deficit, usually with loss of motivation or being able to live independently. About 20% of patients develop epilepsy (*SBM* - Move 10/Step 7).

The following example provides information on how the pathology might be treated:

(47) In the days we are living in today with all the technology improving by the minute, things are promising. In Cape Town there is a big hospital that has a different form of treating Astrocytomas and other brain tumours. It is called the proton beam therapy. The set up is very different from the one that is used in our hospitals. There the patient sits in a specialized chair and the head is binded for immobilization. It has got a panel with all the tumours listed and their sites. The radiographer chooses which tumour it is they are treating and then the machine does the rest. The SSD is always constant and the radiographer do not need to go in and out of the room all the time. This machine emits protons which are accelerated at very high velocities while the other systems emit photons, therefore the treatment time is faster *(APF* - Move 11).

Finally, the report may end with a statement of conclusion and recommendations, for example:

(48) Sarcomas are dangerous tumours which need an early treatment if investigated earlier. The patient must not default and must be given support at home and encouragement. The patient must also be accompanied when going for check up or treatment especially if he/she is elder person, young $\pm$ 8 up to 15 yrs of age or a mentally retarded person. If the patient is admitted, he/she must be given words of comfort, wisdom and encouragement. Give him/her magazines (books) to read at least something to do, to keep him busy, so that he/she cannot feel the pain every time (*OSA* - Move 12).

In (44) and (45) above, two different strategies for evaluation in Move 7 are shown, labeled Step 1 and Step 2 respectively. In the professional corpus, Move 7 evaluates management in terms of a single strategy only, namely by reporting changes that have taken place in the patient's condition, as in Step 1 in the student corpus. Because the students were only temporarily in the hospital for the period of their block release from the Technikon, the cases described in many of their assignments were not resolved before their departure and as a result the writers presumably feel the need to evaluate the possibilities for improvement in the condition of the patient, in other words, to state the prognosis. This strategy is labeled as Step 2 in Move 7 in the analysis of the student reports.

4.4.2.5 Comparison of the Problem-Solution pattern in the case presentation section

In the health science departments in the Faculty to which the student writers belong, it was felt that students should find the case report a straightforward task because narrative is a familiar genre (André Cronjé, Department of Biomedical Technology, personal communication) and that the structure "just makes sense" (see Appendix 4). Indeed, the students did make use of the familiar Problem-Solution pattern in the case report sections, as was noted in the professional reports, with the same sort of multilayering and to some extent with the same focus on the medical team as the dominant participant. There are, however, some differences between the corpora. These involve the more frequent use of a

Plan stage with no following Response in the student reports and the more frequent use of the patient as participant.

Firstly, there are a number of reports (i.e. *ACH, ARF, ABC, APF, ASC, OSA, OST*) which make use of the intermediate stage between Problem and Response which is well established in the professional reports (see 4.3.3.2). In two of these reports the Response is implied. Thus, for example, in *ACH* the radiologist suggests that the patient should have a barium meal (Plan). It is not explicitly stated that this takes place but the radiologist's report (Result) is given verbatim (albeit rather later in the text). Four of the reports (*ACH, ABC, ARF, ASC*) have a Plan with no Response at all. In *ACH* this disruption of the pattern reflects the demise of the patient as can be seen in (49) below:

(49) After the diagnosis of oesophagus Achalasia was confirmed, the doctors decided that the patient will be going to theatre for surgery. The patient's condition was not bad and he was ambulant but all of a sudden he had a severe dyspnoea and was distressed. He was given … but there was no relief … Relatives were contacted … Mr S passed away (*ACH*).

This may be compared with the professional reports *GPFI* and *PHPE,* where the patient demises and the condition is found to be inoperable respectively and where the fact that the medical team can do no more is reflected in a similar break in the Problem-Solution pattern. Thus:

(50) Histological assessment of the gastroscopic biopsy revealed an adenocarcinoma of the stomach. Shortly after the gastroscopy the patient's condition rapidly deteriorated and he demised without any definite treatment (*GPFI*).

In the other two student reports in which a Plan has no Response (*OST, SBM*), there is no such dramatic event and the cause of the dislocation in the pattern is no longer internal to the world of the text. Rather the ability of the writers to follow the expected pattern in these reports is affected by the fact that, whereas all the professional reports present a case which has already been resolved in terms of treatment or demise, the student writers sometimes choose to report on a patient who has not yet been discharged from follow up and whose diagnosis may not even be finalised at the time of writing. Thus, for example, the case presentation section in *OST* ends as follows:

(51) Comparing these signs with osteosarcoma will perhaps confirm the patient's disease (*OST*).

It may be noted that this last example would more readily be classified as the Recommended Response suggested by Hoey (2001: 128) rather than Plan since "it does not answer the question 'What did they do about it?' "

The second noticeably different element in the use of the Problem-Solution text type in the reports is that the student writers tend to indicate the involvement of participants other than members of the medical profession more frequently than the expert writers do. Thus, for example, *ACH* presents the Problem as one for the patient as follows:

(52) Mr S had problem since his childhood. He had dysphagia…. Some other days he would vomit because of this problem. Then he started feeling pain on his right side of the chest… (*ACH*).

The patient in this narrative responds by visiting the hospital, from which point the Problem is represented as one for the medical team. This sort of change of viewpoint occurs in five other assignments as well (i.e. *ACR, APF, ARF, MBL, OSA*). There are only two similar instances in the professional corpus (see 4.3.3.2) and these occur at a very specific point in the structure, namely when the writer describes decisions that have to be made by the patient concerning investigations or treatment that present some risk, in other words, when there is a Potential Problem for the medical team. The representation of the patient's point of view in the student texts appears rather to be a result of the writers' choosing to indicate personal involvement with the patient.

Again this indication of the personal involvement of the writer reflects a particular purpose on the part of the lecturer who, in setting the assignment for the students, specified that "understanding of and empathy with [the] patient" should be demonstrated (Appendix 5). In the interview she expands on this as her primary objective in setting the task:

L: Well I suppose the primary objective is to become involved with the patient. That, I think, is probably number one…. Patients come in and there isn't time for the radiographer to have a conversation, get to know them and you know even just an inkling of what they are going through, because there isn't the time and I don't think it's really our fault so it's to counter that lack of close contact, to give them the opportunity to have that.

4.4.2.6 Comparison of moves in the case presentation section

A marked difference has been noted above with regard to the length of Moves 1 and 2 as compared across the two corpora. Another difference that requires comment is in the case presentation section of the article, where the length of Move 4 (*Reporting problem*) in the student assignments, which is on average 214 words, far exceeds that of 61 words in the professional reports. Most of the students also include a social history (Move 4a), generally occurring before Move 4, the clinical history move. Hunter (1991: 85) in her discussion on the authoring of case notes suggests that the social history is a typical student contribution since it relies on "ordinary personal skills". In some of the assignments this and/or the

medical history is extensive and detailed. In this way the students can be seen to be attempting to demonstrate the personal involvement with the patient required by their lecturer (see 4.4.2.5). This contrasts with the situation in the other corpus where the expert writers prefer to give more space (on average double the length of Move 4 in words) to Move 5 (*Reporting investigation of problem*). In one of the group discussions with the students, a description of how one of them went about programmatically writing up her case report explains how the focus in the student assignments might tend to be on the patient history:

> F: …you get a patient, then you talk to the patient, then you've got a disease, and the patient will tell you the story, what happened to me, and that gives you a few pages. And then you get to the book, you don't have to say an awful lot about it. You talk about your patient, you talk about the patient's condition, the background and everything, and then you say something about the disease, and then you just conclude on the whole thing.

The formulaic start of the presentation in the professional reports was described in 4.3.3.3. Some of the students do come close to achieving this sort of focus, as in the following examples:

(53) Mr J, a 27 year old male was referred from Joubertina to physicians as a newly diagnosed diabetic with uncontrolled glucose levels. The patient was also complaining of chronic headaches, backache, chronic fatigue, polydipsia and polyuria. He has a history of hypertension for the last four years and he had no surgical history (*ACR*).

(54) Amanda who was only three months old when she was admitted to the hospital on the 15th of July this year after she had fits (*BME*).

(55) The patient is a fifteen year old male who came to Frere Hospital complaining of a painful leg around the knee (*OST*).

However, most give the social history prominence, including what would be considered unnecessary details in the other corpus, or provide a medical history which contains so much detail that it leaves the reader unclear as to the point at which the current presentation begins, for example:

(56) 39 year old mother of 2 children. She is still married and comes from a small town in the Eastern Cape (*ARF*).

(57) Mr X is a 31 year old gentleman who lives with his girlfriend in a small two-bedroomed flat …in Quigney, East London (*MAY*).

(58) The patient was born in one of the peripherals right in east Griqualand. He is a student, doing social working in one of the universities there and this is his final year…. At the age of 18, my patient complained about constant pain and swelling of the right knee…. After duration of three months he felt palpable mass above the knee…. During his first visit to the Doctor, he was given pain killers as his treatment…. Then on this second visit, when he felt a mass just above the right knee, he was diagnosed osteogenic sarcoma…. After the above investigations the doctors confirmed that the patient has got osteogenic sarcoma…. After the

> amputation of the right upper ½ femur, there were no complications …. After the surgery of the part of the left lower lobe the left lung volume was reduced…he came for review for blood count then the doctors noticed that the sarcoma has metastised to the right lung in the middle lobe (*OSA*).

There is, by contrast, only one instance in the professional corpus where the medical history is covered in any detail (*BAFE*). It was demonstrated in 4.3.3.3 how the accumulation of detail in this account functions as an integral part of the claims made by the professional writers as contributors to clinical knowledge. This contrasts with the accumulation of detail in (58) above, where the details of the patient's medical history are simply rehearsed in order of occurrence.

It was also noted that, although establishing a chronology of events in the case presentation is essential in the professional reports, in only one study is a date given to indicate when the patient presented for the first time. The use of specific dates is much more common in Move 4 in the student corpus, not only to mark when the patient first presented but also as part of the history which, as pointed out above, tends to be long and detailed. Dates are an important aspect of the case notes from which much of the information included in a case presentation is derived and it is clearly this that influences the nine student writers who make use of dates in their reports as in (59) below. This extract shows the use of temporal adjuncts (in bold) providing a chronological framework for the narrative. Most of these adjuncts give precise dates. Associated with them are statements containing details imported from the reports (in italics) with tense forms indicating where the original wording is being replicated.

(59) **On the 13 August 1998** Charlene went to theatre to have an incision for biopsy on right knee. The examination was done under general anaesthetic and it took 25 minutes. *The biopsy report was reported as follows: The radiologist confirms that the biopsy shows an encapsulated firm mass of 5 X 5cm superior to the right patella.* They concluded that it was an embryonic type of rhabdomyosarcoma.
Computed tomography of the chest was done **on the 21 August 1998** to query the presence of metastasis to the lungs and any abnormality. *The report shows mediastinal and pulmonary windows that were provided, no metastasis, no evidence of mediastinal or hilar lymph adenopathy, no effusion found everything appears to be normal*. **On the 13 September 1998** Charlene was referred to theatre again for the excision of the tumour and patellectomy as the tumour was already spreading into the patella. **On the 24 September 1998** she went to X-ray department to have radiographs of femur and pelvis. The radiographs shows nothing on the upper femur, on the lower femur they show an area of an increase in density just above the knee joint and that was the area of a tumour. Refer to Addendum A. **After all her examination** Charlene was discharged from the hospital and she went home worried because she knew that she was no longer going to be an athlete anymore.
Following year on the 20 July 1999 Charlene came back to the hospital because she was feeling a pain on the same area and she was admitted (*RSA).*

In Move 4 in the professional reports, as indicated in 4.3.3.3, the patient (and his or her

symptoms) is most frequently the basic orientation to the field of discourse and this gives continuity to the move and distinguishes it from the next move. While this is still the case in the students' writing, many of the reports also have several occurrences of theme referring to medical practitioners, for example *the physician, the doctor(s), the radiologist, the urologists, Dr Mitchell, the neurosurgeon, Dr Salton, Sarah's oncologist, the paediatrician*. This suggests that the students report the clinical history of the patient as comparative outsiders rather than as members of the medical team.

Another contrasting lexicogrammatical feature of the student reports relates to dynamism in the move. It was noted in 4.3.3.3 that, in the professional reports, the role of the patient in the transitivity system is generally low in dynamism, being represented either as Actor without Goal or as Carrier. In the student corpus, patients are frequently represented as Sayer or Senser in the clause, both participant types with higher dynamism, and even as Actor with Goal, which indicates the greatest degree of agency. Thus, in general, the student writers represent the patient as having more agency than the professional writers do. Examples in the student corpus include the following:

(60) In an interview with the doctor **she** [Sayer] stated that the pain was more severe *(ABC).*

(61) **She** [Senser] did not see any changes in her condition *(ASC).*

(62) **He** [Sayer] says **he** [Senser] trust that god will be with him *(OSA).*

(63) **She** [Senser] experienced headaches, pain behind her ears and excessive lacrimation *(APF).*

As in the professional corpus, Move 4 occurs in all the student case reports. Similarly, Move 5 (*Reporting investigation of problem*) is a compulsory move, although only Step 3 (*Detailing radiological investigations and results*) is obligatory. A common theme in Move 5, just as in the other corpus, relates to tests and investigations. By contrast with the professional reports, the students frequently choose the patient as theme in the clause, for example:

(64) **Mr. X** had an abnormally high palate, had extremely long fingers and toes and was double jointed and extremely flexible. **Mr. X** also mentioned that he had cataracts removed from both eyes in 1996 **which** is also a feature of Marfan's syndrome. **He** was diagnosed with Marfan's syndrome (*MSY).*

Again, as in Move 4, the patient is often represented as being at the higher end of a cline of agency. This is exemplified in (64) above where *Mr X* functions in one of the clauses as Sayer with the verbal process *mentioned*.

The tendency of the student writers to use the patient as the point of departure in the clause

occurs throughout the case presentation section. In Move 6 (*Reporting response to problem*), there are twice as many references to the patient in the theme as there are to aspects of the management of the pathology. This is in marked contrast to the professional corpus which chooses approximately the same number of themes from each category and, moreover, as was pointed out in 4.3.3.3, often uses themes that refer to organs and parts of the body or to patient activities rather than to the patient as a person. There is a similar preponderance of themes that refer to the patient in Move 7, *Evaluating response,* in the student reports, contrasting with the tendency in the professional articles for themes to refer to features of the pathology or to examinations undertaken to assess the result of the treatment.

The sort of evaluation provided in the student reports does not usually refer to results from investigations but is more often cast in terms of a less technical understanding of an improved life experience on the part of the patient, for example:

(65) After several weeks in hospital the patient was discharged on insulin and hormone replacement therapy (cortisone - acetate). He is currently being followed up by the physicians and neurosurgeons. Currently his diabetes is much better controlled and he does not suffer from debilitating headaches and backache anymore and leads a normal life (*ACR* - Move 7/1).

(66) The patient recovered well from her surgery, but was still experiencing pain and discomfort due to the wound. The patient was discharged from the hospital two weeks later. The patient's condition will only be reassessed after three months, but as there are no other complications present, the doctor is confident that the prognosis will be satisfactory (*ABC* – Move 7/2).

Atkinson (1995), in his discussion of issues in the sociology of medicine based on empirical work within two teaching hospitals, analyses in some detail how an oral case presentation is constructed and emphasises the skill required to narrate the career of the patient and the trajectory of the disease from the available facts and findings. The principles he puts forward are equally applicable to the written version of the case presentation:

> A 'good' account…should provide sufficient detail to allow the audience to follow the chronological development of the illness in question; it should be sufficiently *eventful* to permit the hearer(s) to identify and reconstruct the most salient findings …; the course of the case's telling should display the clinical reasoning and action that have shaped the career of the case (Atkinson 1995: 97).

Atkinson explains the importance of the medical students' learning how to select the level of detail required by the audience, with due attention also to relevance within their shared context. In addition, it is necessary for them to weave various types of information from a

variety of sources into a single account and not simply to recount evidence but to evaluate and select it so as to demonstrate clinical reasoning. On these elements a clear framework of chronology needs to be imposed.

The analysis of the student reports, in comparison to those from the other corpus, has provided evidence that the students do not follow these principles of case narration. The amount of detail provided in their papers concerning the patient ensures a focus on the illness narrative of the patient rather than on the narrative of the disease that characterises the professional medical case reports. This accumulation of detail is often not chronologically coherent nor does it always succeed in providing the reader with an account of the case as an example of clinical reasoning.

It has become clear from the analysis thus far of the lexicogrammatical and genre features displayed in the two different corpora that they differ in the particular rhetorical and narrative skills they reflect. This difference stems from the choices that are made by the writers within a variety of different grammatical and rhetorical systems. The patterns established in the professional articles play an important role in establishing an appropriate professional writer identity. The identity displayed in the student reports relates more closely to that of novices in the field who have to rely largely on the case notes in order to narrate the story of the patient and the trajectory of the disease and who are not yet in a position to identify themselves with the medical team in the hospital. The students tend rather to position themselves in the text as caring and empathetic fellow human beings whose focus includes the personal experience of the patient. In this they are achieving what their lecturer expects of them.

4.4.2.7 Comparison of moves in the discussion and conclusion sections

As has been mentioned in 4.4.2.2, the discussion section in the student corpus consists only of Moves 10 (*Discussing problem*) and 11 (*Discussing response to problem*) and there is no introduction to the discussion in the form of Moves 8 (*Re-establishing territory*) and 9 (*Re-establishing niche*). Since these two missing moves have the rhetorical function of establishing or re-establishing the territory and the niche for the research, their absence suggests that this sort of rhetorical work is not really attempted in the student reports.

There are other striking differences between the discussion in the student corpus and in the professional corpus. Firstly, in the former this section is much longer. Together Moves 10

and 11 on average make up 53.5% in length in words of the student case report, while the same section only accounts for 38.3% of the published articles (this calculation excludes the abstract). One reason is that the absence of Moves 8 and 9 means that there is no introduction to the discussion section and the student writers tend to overcome this problem by supplying one at the beginning of Move 10 (i.e. Step 1). This introductory step only occurs once in the journal articles (as noted in 4.3.3.4) but occurs in 90% of the student corpus. Another reason is that the student writers do not demonstrate an ability to be selective with regard to the information presented in order to ensure its relevance to an audience within the discourse community. In fact, the use of multiple headings, numbered lists, definitions, questions, diagrams and tables in the discussion shows clear evidence of being imported directly from textbooks and internet sources without being shaped for a new context. This is clearly evident in the following examples:

(67) Effects of Growth Hormone:
Proteins:
a) GH increases the rate of protein synthesis
b) GH decreases the rate of protein breakdown
Proteins promotes skeletal muscle and bone growth.
Fat:
GH increases fat catabolism, e.g. promotes the utilization of fat as a source of energy rather than glucose.
Glucose (carbohydrates):
a) GH decreases glucose utilization by cells
b) Decreases glucose uptake by cells.
c) Increases the conversion rate of liver glycogen into glucose, therefore GH increases blood glucose levels (diabetogenic effect).(Tortora, 1990, p. 807) (*ACR* - Move 10/2).

(68) WHAT NOT TO DO! There are a number of things that aren't a good idea for people with Marfan's syndrome.
1. Sports. Any intense and demanding activity that involves the risk that you could fall, hit something or someone, or sustain a blow to your head must be ceased immediately. This is a variety of reasons:
a) Blows to the body can injure joints that are too loose or could result in a ruptured aorta.
b) Elevated heart rate and blood pressure are just not good for Marfan syndrome sufferers. Their aortas are fragile enough that the increased blood pressure could either cause a rupture, or else cause it to dilate, which would shorten its working lifespan
c) Blows to the head can cause the lenses of the eyes or retinas to detach. The risk is major eye surgery or even blindness…. (Internet) (*MAY* - Move 11/2).

(69) Definition: The inability of the kidneys to perform their function. A rapid and profound decline in renal function, with oliguria and accumulation of metabolic waste products in the body (Forbes & Jackson; 1993, p.269) (*ARF* - Move 10/1).

In addition, there is a lack of focus on radiological aspects of the literature, shown by the fact that the treatment of the discussion regarding radiological investigations and diagnosis is handled differently in the two corpora. While the professional reports, as might be expected in the field of diagnostic radiography, usually link diagnosis clearly with the discussion of the relevant radiological investigations, the student writers often do not achieve this sort of focus

and in fact 60% of the student reports contain no discussion of radiological aspects at all in Move 10. That a radiographic focus was not necessarily expected by the lecturer who set the student assignment was commented on in 4.4.2.2.

Moves 10 and 11 each generally display the structure of the report text type, consisting of the General-Particular (Preview-Details) pattern, as was discussed in 4.3.3.4 for the professional reports. An example of Move 11 in the student corpus follows in Table 4.25:

Table 4.25 Example of Move 11 *(ACR)*

MOVE 11 Discussing response to problem		**Discourse pattern**
STEP 1 *Presenting background information*	The goals of the therapy is to normalise the GH levels (< 2mgl litre), as well as to decrease the tumour size and maintaining normal pituitary function.	Preview
STEP 2 *Reviewing information on management*	Surgery This is the therapy of choice as there is a quick response and it is potentially curable. With transphenoidal surgery the success rate of removing the whole tumor is 80% for a micro adenoma and 50% for a macro adenoma. Up to 20% of patients will have post operative popituitarism that will necessitate hormone replacement therapy. Radiotherapy Radiotherapy is usually successful is lowering GH levels, but the response is long term. Proton irradiation is used more often. The average time for a response is approximately 2 years and 50% of patients will have hypopituitarism. Other complications include malignancies in the radiation field, visual disturbances and brain necrosis with impaired cognitive abilities. Radiotherapy is usually reserved for patients with inoperable tumors, a contra-indication to surgery or where surgery and drugs have failed. Drug Therapy The two main drugs are: A) The Dopamin agonist Bromocriptine. B) The longterm acting Somatostatin analogue Octeotride. These drugs are seldom used as monotherapy, but rather as an adjuvant to surgery or radiotherapy.	Details (taxonomy)

The patterns of thematic choice are very similar to those noted for the professional reports, with the point of departure for the majority of clauses being aspects of the pathology in Move 10 and modes of treatment in Move 11. One difference between the two corpora is that Move 11, which summarises relevant research on management of the pathology, occurs consistently in all the reports in the student corpus, while its presence is not obligatory in the professional reports, where the emphasis may predictably be on diagnosis rather than treatment. The presence of this move consistently across the student corpus suggests again that the primary purpose of the student writers is to display their knowledge as obtained through reference to textbooks and other sources.

There are very few occurrences of Move 12 in the student reports because the conclusion to

the assignment tends to be provided by a prognosis (i.e. Move 7, Step 2) instead. Examples of this have been given in the discussion of move order stability in 4.4.2.4. The focus of the prognosis is on the patient, while the expert writers, as discussed in 4.3.3.4, use the conclusion to review the important facts of the case and to make recommendations, exhibiting a persona at the same time professional and persuasive. By contrast, the student writers, even when they do conclude with a Move 12, tend to focus on the possible outcome for the patient and present the persona of a compassionate human being who is concerned with commonsense rather than professional matters, for example:

(70) This case study is interesting and it also touched me because of the outcome. Mr S. was convinced that his condition was improving and he hoped to be with his family very soon. He even gave me his home telephone number saying that I'll have to phone him at home if I still want some more information because to him it seemed as if he was not going to be in hospital for a long time. He was so optimistic. I learnt that I'll have to pay attention to my aches and pains before it is too late (*ACH* – Move 12).

4.4.3 Conclusion

In this section I have, building on the description of the genre structure of the professional case reports presented in section 4.3, compared the two corpora and shown that the exigency of the task set for the students generally seems to have enabled them to produce a recognisable genre structure. Nevertheless, there are important differences in the moves and lexicogrammar that indicate that the students are drawing on other identities rather than that of the professional in the field. Thus the students seldom make any claim to add to clinical knowledge and, while the paradigm of Western medicine is embraced, the focus on diagnosis and evaluation that characterises the professional reports is less marked in the student corpus, with the writers often aligning themselves with the viewpoint of the patient rather than the medical professional. These differences reflect the different purpose that the student writers bring to their reports as indicated in their comments and in the sort of expectations that their lecturer had in setting the case report as an assignment for them.

The student writers are also very dependent on written sources for their knowledge and, at the same time, are unable to recast this information into a new, coherent account of the findings and diagnosis of the relevant case and a discussion of relevant information from the literature.

4.5 COMPARATIVE LEXICOGRAMMATICAL ANALYSIS OF A SINGLE CASE REPORT FROM EACH CORPUS

Eggins (2004) explains how the analysis of a text may be approached from 'below', when specific linguistic features are of interest, or from 'above', when the context is of interest. The approach in the current study is from 'above' and is focused on genre but, because realisation of genre implicates lexicogrammatical systems, analysis of a selection of these systems has also been drawn on in the previous discussion where it proved to be useful.

The decision to undertake a comprehensive linear analysis of the corpora rather than a corpus analysis approach was discussed in 3.3. Drawing on this detailed register analysis and in order to confirm the conclusions regarding identity that have been drawn, a single sample text from each corpus is the focus of attention in this section. The two texts to be compared are *Successful endovascular treatment of a large vein of Galen malformation in an infant: A case report* (*VGMA*) from the professional corpus and *Arteriovenous malformation* (*AMA*) from the student corpus. The topic, in these two texts, concerns the same pathology, that of a malformation in the venous system. The aggregated patterns of the register variables occurring in each are compared and discussed, with the analyses themselves being made available in Appendices 8 and 9. The particular findings dealt with here are transitivity, including processes and participants, (4.5.1) and theme (4.5.2) and these analyses exemplify the process that was applied to all the texts in both corpora. Finally, conclusions are drawn from the analyses with regard to the realisation of purpose and identity in the two corpora (4.5.3).

4.5.1 Findings from the transitivity analyses

A brief description of the system of transitivity was provided in 3.1.2.1, presenting the meanings of a clause as experiential and labeling the various elements as processes, with associated participants, and circumstances. Each clause, ranking or embedded, in the two texts chosen for comparison (i.e. *VGMA* and *AMA*), has been analysed in terms of participants, processes and circumstantials (see Appendix 8). Table 4.26 below displays the patterns of use of the processes as they appear in the two texts. The aggregated figures for each corpus are also included and this demonstrates that the transitivity patterns in the sample texts are very similar to the overall frequencies.

Table 4.26 Processes in two case reports (*VGMA* and *AMA*) compared with overall frequencies for the two corpora

Transitivity								
Process type	Professional				Student			
	Corpus		VGMA		Corpus		AMA	
Material	365	25%	20	26%	1321	35%	74	31%
Mental	125	9%	3	4%	285	8%	16	7%
Verbal	85	6%	3	4%	141	4%	9	4%
Existential	46	3%	4	5%	160	4%	8	3%
Relational	4368	57%	47	61%	1843	49%	130	55%
Total	**1458**	**100%**	**77**	**100%**	**3750**	**100%**	**236**	**100%**

The majority of processes in both texts are relational, a characteristic feature of the language of science (Martínez 2001), showing that the writers, and in particular the professional writers, are more concerned with describing and identifying entities than with actions and events. Existential processes also contribute to these descriptions.

Where material processes occur in the professional article (*VGMA*), these are mainly, as might be expected, in the case presentation section, which has as its goal the narration of the trajectory of the patient's illness. The student paper (*AMA*) does not follow this pattern and the large number of material processes found across all the various sections of the report occurs because the writer is concerned with explaining the processes and mechanisms of the condition and of the various treatments available, in addition to merely describing them. This sort of detailed explanation is characteristic of a textbook rather than of a professional case report. The characteristics of textbook writing are revealed again in the use of theme (discussed in 4.5.2) and in their metadiscourse choices (4.6.2).

Reference was made to Hasan's (1985a) cline of dynamism with regard to participants in 4.3.3.3. Table 4.27 below indicates some of the important participants in each text and the amount of dynamism they are given. It should be noted that what is of interest in this analysis is not the number of occurrences but rather the choice of roles. There are some differences in the level of agency linked with different participants by the professional and the student writer. Thus it is only in the student paper that a mode of treatment (in this case radiotherapy) functions as Actor or Initiator. By contrast, the mode of treatment is lower on the scale of dynamism in the professional text.

Table 4.27 Participants in professional (*VGMA)* and student *(AMA)* case reports

Participants	-er participants														-ed participants	
	Actor (animate goal)		Actor (inanimate goal)		Attributor/ initiator		Sayer		Senser		Actor (no goal)		Carrier/ Token			
	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S
Pathology											1	12	13	38	12	26
Patient								1		3	3	10	1	12	1	5
Examination													7	8	2	3
Treatment				7		1							8	12	5	4
Author					1			2								
Author ellipsed							2									
Medical team								1		1						
Medical team ellipsed	2	3	9	11	1	4	1	5	3	11	5	14				

The meanings created in *AMA* suggest a more naïve understanding of medicine as directly affecting the patients' symptoms, the writers of the professional article tending rather to describe modes of treatment by presenting attributes or identities for them. The patient is also given more dynamic roles in the student paper (i.e. Sayer and Senser) than in the other, again suggesting that the writer aims to express a more personal sort of relationship with her patient than is acceptable in the professional report. While in both reports the doctors and/or radiologists appear in a range of *–er* roles, it is only in the student assignment that there are instances where these participants are not elided.

4.5.2 Findings from the thematic analysis

The theme-rheme system was briefly described in 3.1.2.1 where the various types of theme were defined. The occurrence of these types of theme in the two case reports under consideration is summarised in Table 4.28 below:

Table 4.28 Comparison of categories of theme in an example from each corpus (*VGMA* and *AMA*)

Category	*VGMA*	*AMA*
Textual theme	3	74
Interpersonal theme	1	5
Multiple themes	0	5
Marked theme	4	18
Total Ranking Clauses	**64**	**196**

One striking difference between the texts is the frequency of textual themes in the student paper and their low rate of occurrence in the professional article. The three instances in the latter are all relative pronouns and so carry experiential meaning as well. The student text by contrast has almost half of the clauses beginning with conjunctions realising the logical relations of addition (22 occurrences), comparison (17 occurrences), consequence (14 occurrences) and time (7 occurrences), the four categories distinguished by Martin and Rose (2003). What this confirms is that there is in the professional article a strict focus on information relevant to the case report, while the student writer presumably follows her sources (all textbooks) in ranging over a great deal of explanatory information. There is, moreover, no need for the writers of the professional article to make the logical relations clear since they obviously assume discipline specific knowledge in common with their readers so that these relations do not need to be made explicit. The guiding of the reader in the student texts, through the relations between propositions, is more characteristic of the language of textbooks where, as Myers (1992) neatly expresses it, knowledge is inferred by the reader by means of these links rather than, as in professional academic writing, links being inferred by means of knowledge.

As indicated in Table 4.28, multiple themes and interpersonal themes occur infrequently, if at all, in the two texts under consideration. What is worth commenting on, however, is the use of marked themes in both, which, although the rate of occurrence (given the disparate length of the texts) is similar, differs perhaps in intention. In the professional article (*VGMA*), the marked themes seem to be used by the writer to achieve very specific effects. Firstly, in Move 6 (*Reporting response to problem*), the goal of which is to report the management of the particular case, they help to draw attention to important reasons for the decision to embolise the malformation and to the careful and explicit descriptions of procedures involved:

(71) **In view of the major contribution of the VGM to the patient's obstructive hydrocephalus**, *it* was decided to perform transarterial embolization of the VGM in two stages. **Under general anaesthesia following right superficial femoral artery cut down and left vertebral artery catheterisation**, *the major feeding pedicle originating from the left posterior cerebral artery* was superselectively catheterised with a microcatheter, Tracker-Unibody (Target Therapeutic) and Dasher 1 (Target Therapeutic) guidewire…. **Three weeks following embolization** *a ventriculo-peritoneal shunt* was inserted (Move 6 - *AVGA*).

A marked theme also occurs in Move 7 (*Evaluating response*), where it indicates a focus on a clinical viewpoint rather than the more usual radiological one. An example of this is provided in (72) below, where the marked theme is in bold:

(72) **From a clinical point of view** *the baby* is doing well 5 months following embolization (Move 7 - *VGMA*).

There are no marked themes in any other section of the professional report. By contrast, the student writer not only makes use of marked themes in the case presentation section to provide a general temporal framework for her narrative but also makes regular use of marked themes in the discussion section of her paper, usually to allow the conditions under which the proposition occurs to be made thematic. This sort of packaging of the information may well be the result of the use of the textbook as a source for these moves.

The topical themes referring to pathology, patient, examinations, treatment and aspects of research are in evidence across both texts, although the student text also includes themes referring to time and, in the introduction, to the case study itself and the writer.

4.5.3 Conclusion

The discussion of lexicogrammatical patterns above has focused on a sample text from each corpus. However, it can be claimed that the patterns are representative and, indeed, they seem to support conclusions drawn elsewhere in this chapter with regard to differences between the purposes and identity of professional and student writers.

One of the important features of the professional text that is reflected in the use of transitivity patterns is the distinction between the case presentation section and the other sections of the report. The use of material and verbal processes presents the writer as an objective observer. There are no such consistent patterns in the student text. There are also important differences in participant agency in the two texts, so that the professional writer not only sees the patient as having less efficacy than the student writer does but also presents the medical team as acting on the pathology or on investigative processes rather than on the patient directly.

The thematic analysis suggests that the professional writer relies on the knowledgeable reader to make links between propositions while the student writer, using material from textbooks, packages her more wide-ranging information in ways typical of her sources, with many more conjunctions and the use of marked themes.

4.6 METADISCOURSAL INDICATIONS OF IDENTITY IN THE TWO CORPORA

Metadiscourse refers to the way the writer engages with the reader in text and signals attitude towards the reader and the subject matter. As discussed in 2.2.3, metadiscourse analysts have distinguished propositional and non-propositional aspects of discourse and then further categorised the latter into devices which organise the text and those that convey attitude (e.g. Crismore and Farnsworth 1990; Hyland 2005; Vande Kopple 1985). The concept of metadiscourse focuses on the ways in which these textual and interpersonal features are used concurrently in discourse to enable interaction between writer and reader. Because discourse is always situated within social contexts, this interaction can be seen to take place within a discourse community and must take account of how socially recognised purposes can appropriately be achieved through the creation in text of the recognised context shared by the writer and reader. This is achieved by writers' following genre conventions and using metadiscourse appropriately "to present their arguments, control their rhetorical personality and engage their readers" (Hyland 2005: 142). Thus the analysis of a corpus for metadiscourse features can suggest reasons behind disciplinary rhetorical practices (Hyland 2007) and show to what extent the context enables or constrains novice writers in their presentation of a disciplinary or professional persona.

In the discussion of metadiscourse in 2.2.3, Hyland's (2005) analytical scheme was introduced. This model for analysis views both interactive and interactional categories as interpersonal with, on the one hand, interactive features organising discourse so that the writer can relate to the reader's needs and establish credibility within the discourse community and, on the other, interactional features creating the relationship between writer and reader that allows the writer to present an acceptable persona. It was argued that this model would reflect the function of metadiscourse resources more appropriately if evidentials (the attribution of ideas to sources) were categorised as interactional rather than interactive features. Accordingly a revised model, as detailed in 3.1.4, is used in the analysis below.

In the analysis of metadiscourse features in this section, I deal first with the patterns that appear in the professional case reports (4.6.1) before discussing the use of metadiscourse in the student assignments in relation to the patterns that have emerged in the professional corpus (4.6.2). Finally, conclusions are drawn with regard to differences in writer identity revealed in each corpus (4.6.3).

4.6.1 Characteristics of metadiscourse in professional case reports

In order to engage with issues of writer identity in the professional corpus of radiology articles, I found it useful in the first instance to compare the occurrence of metadiscourse in the professional reports with that noted by Hyland (1999c, 2005) for research articles in the related field of biology. The differences in the way metadiscourse is used in research articles and case reports suggest interesting and useful ways of describing disciplinary identity. However, space constraints do not allow this work to be reported on in detail here and the focus in this study is rather on a comparison between the two corpora of case reports. Nevertheless, some reference will be made to this preliminary comparison in the discussion that follows.

This section attempts to create a foundation for the description of the student patterns of metadiscourse use and the way in which they realise aspects of purpose and identity in the student texts. It does this by establishing first the patterns in the professional corpus and therefore it is important to give some attention to a detailed description of the various metadiscourse features and how they are used in the professional corpus. After a brief overview of the aggregated frequencies of the metadiscourse devices found in the case reports (4.6.1.1), each device is discussed and exemplified, firstly within the interactive category (4.6.1.2) and then the interactional category (4.6.1.3). Differences in the patterns of occurrence in the various moves in the texts are also explored and the changing goals of the writer as the report unfolds discussed (4.6.1.4), before the section concludes by discussing the insights into writer purpose and identity provided by metadiscourse markers in the professional corpus (4.6.1.5).

4.6.1.1 Occurrence of metadiscourse markers in professional case reports

Table 4.29 below shows the occurrence of the various subcategories of metadiscourse found in the corpus of professional radiological case reports used in this study. In order to explain the significance of the frequencies of these devices, they can be compared with frequencies of other important features of academic writing such as passive constructions (18.5 instances per 1000 words) and past tense verbs (20 instances per 1000 words) (Hyland 2005: 55).

Table 4.29 Interactive and interactional functions in professional case reports

Category	Professional	
	Per 1000 words	% of total instances
Interactive	**10.8**	**22.5**
Transition markers	2.2	4.6
Code Glosses	3.8	8.0
Frame markers	0.6	1.3
Endophoric markers	4.1	8.6
Interactional	**37.1**	**77.5**
Evidentials	11.4	23.9
Hedges	17.1	35.7
Attitude markers	3.8	8.0
Self mention	1.9	3.9
Boosters	1.4	3.0
Engagement markers	1.4	3.0
Total	**47.8**	**100.0**

The case reports show the occurrence of significantly more interactional than interactive features; by contrast, it is the latter which were found to be predominant in the research articles. This is due to the perhaps surprisingly large proportion of evidentials and hedges that occur in these reports, the frequencies of both which are greater than in the research articles.

Each subcategory of metadiscourse as used in the corpus of professional case reports will be discussed in turn and the types of strategies for realising them will be examined. This is to enable a subsequent comparison with the student corpus, since the use of metadiscourse provides evidence of the different ways in which writers are able to establish an appropriate identity within the discourse communities to which they belong.

4.6.1.2 Interactive metadiscourse features

Interactive metadiscourse (discussed in 2.2.3) is used by writers to assist the reader through text. There are generally fewer interactive metadiscourse features in the corpus of case reports than there are in Hyland's biology research articles and there are also differences in the particular strategies the writers in the two genres choose to realise them.

Transition markers, while the most frequently occurring interactive feature in the research articles, constitute a very small proportion of metadiscourse in the corpus of professional case reports (2.2 instances per 1000 words). This is because conjunctions occur fairly infrequently in the latter and where they do occur often have the function of connecting propositions that report events and activities rather than indicating organisation of the

discourse. These different roles for transitions are distinguished by Martin and Rose (2003) as external and internal respectively (2.2.3).

The comparatively smaller number of transition markers occurring in the case reports reflects the fact that these texts, in the first instance, present a particular case by means of authoritative statements of observed fact. The case presentation is accompanied by a discussion of the literature which generally represents the relevant theoretical and diagnostic principles as established and uncontroversial fact. Elements of argumentation are not as common as in research articles, where more space is given to persuading the reader of the merits of the writers' claims by demonstrating their reasoning, with a consequent much more frequent use of transitions. The following is an example of a transition marker as it appears in the professional corpus:

(73) **As** simple avulsion of the intranasal portion alone is associated with recurrence of at least 20% within two years, the polyp should be resected together with the pedicle and its intrasphenoidal portion (*SPOL*).

Frame markers provide readers with information about discourse elements in order to guide them through the text. Hyland (2005: 105) in his multidisciplinary corpus of research articles found that frame markers "tended to cluster in introductions, where they acted to specify the overall purpose of the research, and in discussion sections, where they served to organize lists of points". While there are relatively few examples in the case reports (0.6 instances per 1000 words), they occur in precisely the same contexts as Hyland mentions. Using a frame marker to announce the purpose of the case report at the start of the report (either in the abstract or the introduction) is one way in which Move 3 may unfold in this genre, for example:

(74) **The aim of this report is** to discuss the importance of the combination of scintigraphy and ultrasonography prior to fine needle aspiration (FNA) in the diagnosis and management of swellings of the thyroid gland (*HTGL*).

A frame marker can also be used when the case is announced descriptively, for example:

(75) Artefacts may however occasionally cause a diffuse abnormality as **the following case** illustrates (*DCAR*).

Other devices used as frame markers are rare in this corpus. They include six lists, such as that in (76) below:

(76) Recognition of cerebral artery fenestrations in the context of cerebral ischaemia or stroke is important **for at least three reasons: 1** It may represent the mechanism for the ischaemia or stroke… **2**… **3**…. (*BAFE*).

There is also one instance of labelling a particular stage of the discourse:

(77) **In conclusion** although our results were satisfactory, we hope that this rare case of primary hydatidosis of the thyroid will prove useful to justify routine use of ultrasound in the evaluation of thyroid nodules, especially where cystic lesion is suspected (*HTGL*).

It is not surprising that frame markers are not found frequently in this genre since the texts tend to be short (730 words on average, including the abstracts) and the discourse follows a very predictable structure, as described above in terms of genre moves, and so, apart from indicating the aim of the report as one of the strategies for occupying the niche (see 4.3.3.1), the writer has little need to guide the knowledgeable reader through the report.

Endophoric markers refer to material in other parts of the text. They characterise scientific writing, where they generally refer to non-linguistic elements such as tables, diagrams and graphs, adding additional information to what has been presented verbally (Hyland 2005). Endophorics appear in every case report in the professional corpus without exception since it is routine for the writers to include a number of radiographs or scans to illustrate their cases, for example:

(78) A mass located in the right cerebellar hemisphere was found on MR imaging with slight mass effect on the right lateral recess of the fourth ventricle (**Figure 1**). No oedema or hydrocephalus was present. Some of the folia in the right hemisphere were enlarged (**Figure 2**). The lesion appeared hyperintense on T2, and iso-intense on T1-weighted images. The right cerebellar hemisphere was enlarged with a thickened cortex (**Figure 3**), together with a decrease in the amount of central white matter (**Figure 4**) (*DGCE*).

The use of endophorics not only refers to illustrative material to assist the reader in understanding the details of the description or to provide evidence for diagnostic decisions but also displays the expertise of the writers within the disciplinary culture by means of the diagnostic insight shown. These references generally appear in Move 5 (as in the example above), where the investigation of the patient's condition is reported, although there are also illustrations related to treatment (Move 6), for example:

(79) The artery was completely embolized with placement of six microcoils (Target Therapeutic) (**Figure 4**) (*VGMA*).

The follow up after treatment (i.e. Move 7) may also show instances of endophorics, for example:

(80) Cranial ultrasound and Doppler studies performed 24 hours following embolization showed complete thrombosis of the VGM with no detectable flow and slight shrinkage of the aneurysm (**Figure 6**) (*VGMA*).

The writers may use references to a visual to link the general discussion of the pathology in Move 10 with the particular case, as in the following:

(81) This sign is clearly illustrated in **Figure 1**(*CTOR*).

There is one unusual example in this corpus where a radiograph from a different case is used for illustrative purposes. The writer is attempting to show that various types of abnormalities on diagnostic images, such as in the particular case he or she presents in the report, are not infrequent occurrences and to support the claim that this case is worth presenting since there are other instances in which investigations carried out on the same patient in different departments were the cause of inexplicable abnormalities:

(82) An example of the rather bizarre apparent alteration in the grey/white density caused by intrathecal contrast is included (**Figure 2a, b**) (*DCAR*).

There is a single reference to a table in the corpus. This appears in *RRAA* where, in the introduction to the discussion, the writers provide details of reported cases of the pathology from the literature in tabular form in order to provide support for their contention that the high mortality rate recorded is partly due to incorrect preoperative diagnosis.

An alternative type of strategy, which is characteristic of research articles in the soft disciplines or of longer texts like dissertations (Hyland 2005), is the use of references to another part of the text rather than to a figure. This strategy, however, rarely appears in the radiology corpus. An example occurs in *PCTU*:

(83) It usually presents with a painless scalp swelling (**Case 1**) or a discharging sinus.[1] The outward expansion of the calvarium produces Pott's puffy tumour.[5] Lesions are usually single, well-circumscribed and lytic with involvement of the frontal or parietal bones, and rarely in the sphenoid and occipital bones (**Cases 1 and 2**).

What accounts for this lack of reference to the text itself is that the case reports are relatively brief and follow a well established genre structure. There is thus no real need for links between one part of the text and another to be made explicit, and the details of the case are not usually explicitly linked with the discussion of the literature regarding the same pathology since readers, as specialists in the field, would be expected to make the links between sections for themselves. A similar explanation regarding fixed genre structure has been given by Dahl (2004) for the low frequency of references to texts themselves in a study of medical research articles.

Overall then, the use of endophorics is related to the genre context and the report writers routinely refer in their texts to the visual material which is central to the presentation of each case. The persona of the practitioner in the field of radiology is integrally tied up with the visual evidence for the diagnosis of the pathologies under consideration in the various reports.

Code glosses are devices that provide additional information for the reader, serving to "enhance understanding, shape meanings more precisely to the writer's goals, and relate statements to the reader's experience, knowledge-base, and processing needs" (Hyland 2007: 267). Code glosses occur infrequently in the radiology case reports (3.8 instances per 1000 words).

Hyland (2007) indicates the tendency in scientific research articles for code glosses to occur as reformulations (i.e. another version of an idea in different words) and this is particularly marked in the case reports where 90% of the code glosses are reformulations rather than exemplifications. The writers generally simply mark these elaborations off in parentheses although the markers *i.e.*, *or x, namely* and defining items also occur, for example:

(84) The unique radiological finding in LDD, **namely the thickened cerebellar cortex with enlarged, dysplastic folia, and the thinning of the central white matter** is well demonstrated in this case (*DGCE*).

(85) Silver sulphadiazine ointment **(Flamazine)** was applied to the burnt areas (*DCAR*).

(86) Aneurysms whose greatest diameter exceeds 2.5 cm **are termed** "giant aneurisms" as in the case under discussion (*AVGA*).

(87) Echinococcosis, **or hydatidosis**, has a characteristic geographic distribution… (*HTGL*).

It is clear in these examples that the writer is providing reformulations either to make available the necessary theoretical background for the reader who may not have come across this particular type of case in his or her practice, so as to bring a particular focus to bear on critical findings, or to provide specific details.

Where examples, as opposed to reformulations, are used by the radiology writers they provide a particular instance of a more general category, for example:

(88) Operative interhemispheric (**e.g. transcallosal**) procedures near the superior sagittal sinus may produce local trauma and stasis (*CVTH*).

Hyland points out that writers in science rely on the knowledge of their readers and so use

examples that are embedded in their disciplines. In fact, the code glosses that writers choose to use in general "signal the judgements they are making about their readers" (Hyland 2007: 284). The radiology writers indicate clearly in their use of code glosses that, while they are presenting cases which represent an advance in clinical knowledge, they are engaging knowledgeable members of the community as peers who share a specialist knowledge and understanding of the techniques and approaches of the field.

4.6.1.3 Interactional metadiscourse features

The interactive devices discussed above are responsible for organising the discourse in ways that will make it coherent to the audience in terms of "its probable knowledge, interests, rhetorical expectations and processing abilities" (Hyland 2005: 49). The second dimension of interaction with the reader in Hyland's model consists of interactional features by means of which writers involve their audience by inviting a response to the text as it unfolds. The importance of interactional relationships in medical discourse across various genres published in medical journals has been shown by Adams Smith (1984) and its importance is obvious in the corpus of case reports, accounting as it does for 77.5% of the metadiscourse features in the corpus.

The use of Hyland's interactional subcategories allow for a systematic analysis and explanation of the various ways in which this sort of interaction takes place in the corpus of radiology texts. It should be noted that the description given below includes evidentials as a sub-category of interactional devices. The reasons for this were discussed in 2.2.3, where it was suggested that, since evidentials can be seen as being oriented to the needs of the writer to convey an appropriate persona as a member of the discourse community rather than to the needs of the reader, they more readily fit into the category of interactional metadiscourse.

Evidentials "indicate the external origin of material in the current text and give credence to that material by drawing attention to the credibility of its source" (Hyland 2005: 96). Hyland discusses the difference in the use of evidentials in research articles within the soft and hard fields of knowledge, arguing that references to the literature are less visible in the latter because of the nature of the research enterprise in the sciences. He explains this as follows:

> [R]eferences…tend to be tightly bound to the particular research topic. Citation is a means of integrating new claims into current knowledge while drawing on

> previous work as supporting testimony, situating new work in a scaffold of accredited facts (Hyland 2005: 158).

Perhaps unexpectedly, the case reports reveal more instances of evidentials than occur in the figures for biology research articles presented by Hyland, with an occurrence of 11.4 per 1000 words in the former (as compared to 9.8 in the latter). Hyland and Tse (2004a), in a study of postgraduate dissertations, note the very high use of evidentials in biology and put it down to the fact that the ownership of ideas is important in this field. The fact that there is some use of integral citations in the radiology corpus, with the name of the researcher included in the text, suggests that the indication of ownership of ideas may be a contributing factor to the frequency of evidentials in this field too, although it does not explain why the radiology corpus has more evidentials than the biology research articles. It seems that one probable reason is that the cumulative nature of clinical knowledge differs from knowledge produced by scientific research. Clinical knowledge, as evidenced in the radiology case reports, generally develops through the presentation of new clinical experience that is explicitly related to previous findings as reported in numerous studies and reports, sometimes ranging over long time spans. By contrast, as indicated by Hyland (1999a, 2005), scientific research focuses rather on the current state of knowledge arrived at through a well defined line of development of which the disciplinary community is assumed to be aware and which thus does not need to be revisited.

The competent use of relevant citations in the radiology reports also indicates familiarity with the literature and allows the writers of the case report to present themselves as authorities in the community of radiology practitioners. It must however be noted that the various individual reports in this corpus differ markedly from each other in this regard, with lists of references ranging from a single item (in *LDCA*) to 45 (in *RRAA*). The references are mostly to published papers (research articles and case reports) but a few of the citations refer to textbooks (10.3%).

Evidentials in the professional reports are generally non-integral citations indicated by means of a numerical superscript system and they thus help to achieve the conventions of impersonality which characterise scientific writing (Gosden 1993; Halliday 1993; Swales 1990). There is also some use of integral references (just over 12% of the instances of evidentials) as mentioned above. Swales (1990), in his discussion of attribution variables, does not include the form in which integral citations are superscripted, although this is how integral references usually appear in the corpus of case reports. They are generally part of

an account of a contested explanation where a picture of the available evidence is being built up or else they are introduced as support for a particular interpretation being presented from particular studies, for example:

(89) **Wexler[10] has described** the various changes that occur in the arterial wall of breeder rats during successive pregnancies and **Manalo-Estrella and Baker[11] have documented** connective tissue changes in the aortic media of pregnant females in 16 autopsy specimens. Intimal thickening has also been seen in the arteries of rats treated with synthetic steroids.[12] Histopathological examinations were conducted on 12 of the 24 cases of renal artery aneurysm that ruptured during pregnancy. Atherosclerosis was demonstrated in three cases, fibromuscular dysplasia in three cases and neurofibromatosis in one case (Table I). In five cases no specific changes of atherosclerosis or fibromuscular dysplasia were seen. These findings are in contrast to **Lacombe's study** where 90% of his 123 patients operated for renal artery aneurysms had evidence of fibromuscular dysplasia[13] (*RRAA*).

Another context in which integral references to the literature occur is when the writer gives recognition to the first researchers to describe a condition, for example:

(90) **It was first described by Stout and Murray** in 1942 and is composed mainly of pericytes, contractile cells normally found surrounding capillaries and post capillary venules[1,2,3] (*PHPE*).

Thus, where integral citations are used in this corpus, there seems to be a special attempt to place the focus on the researcher (Thompson 2000; Weissberg and Buker 1990).

The case presentation proper occasionally contains an indication in Move 4 of the source of information as the patient himself or herself, for example:

(91) On specific questioning **she mentioned** that she recently found it difficult to walk in a group, since she kept bumping into people (*DGCE*).

(92) …**he described** the left sided image (referring to his diplopia) as “coming and going all the time” (*BAFE*).

This sort of reference seems to be employed to mark relevant information in the case history for which the practitioners want to signal specifically that no medical authority, such as technological investigations or case notes, exists. The words of the patient may even be quoted verbatim as in (92). However, reference to patients (or their families) as a source of information is rare in the corpus.

As Hunter (1991) points out in her discussion of the case report proper, a single voice is generally achieved in the writing up of the case with no distinctions being made between the roles of observer, interpreter and author. She comments in particular on the effect of this in obscuring the hierarchical distinctions in the real world of clinical medicine. There is,

however, in the radiology corpus a single example of an evidential which reflects an aspect of the hierarchical relationship within the medical team. This occurs in a report written by a radiographer, who is careful to attribute the clinical planning to the specialist in the case she is describing rather than stating it on her own authority as part of the medical team:

(93) **The radiologist suggested** that further differentials should be considered if the angiogram was negative (*AVGA*).

The more general narrative convention of a single voice, even though there are multiple authors and though the use of the first person plural pronoun is frequent (see the discussion of self-mention below), stands in contrast to the immediacy of the patient notes and of the oral case presentation, both of which genres are characterised by distinctive voices and indications of division of responsibilities (Atkinson 1995; Hunter 1991), and is similar to the effect achieved in the research article.

There is overall, in the different reports, evidence of different styles of citation together with divergence in the numbers of works cited and it is obvious that the radiology writers, in citing the literature and other sources, are able to draw on this range of practices as best suits their needs in a particular case report, while still achieving an acceptable identity in the disciplinary community.

Hedges and boosters are epistemic devices that allow writers to express certainty and doubt. Hyland (2005: 98) explains the importance in scientific genres of writers' being able to provide the audience with explicit evaluation of material while avoiding rejection of their arguments:

> [Epistemic devices] are crucial to negotiating knowledge claims with a potentially skeptical audience. Hedges and boosters carry the writer's degree of confidence in the truth of a proposition, displaying an appropriate balance between scientific caution and assurance, but they also present an attitude to the audience. Knowledge claims have to be carefully handled, so writers must invest a convincing degree of assurance in their propositions while avoiding overstating their case and risking inviting the rejection of their arguments.

The sort of research article being described above reports results of experimental work and the claims based on these. It is, as Hyland (1998c: 22) asserts, "a rhetorically competent product through which scientific knowledge is negotiated and ratified." Case reports, by contrast, show a different structure and have a different purpose from that of research articles. While the sort of rhetorical strategy represented by hedging and boosting has an important role to play in allowing the writers to present the rationale for considering their

contribution to clinical knowledge as useful, it would not be surprising should the case reports have fewer epistemic markers than research articles. Boosters do occur infrequently in the case reports (1.4 words per 1000). A count of hedges in the case reports shows that they are more frequent (17.1 instances per 1000 words) than in Hyland's (2005) biology corpus (12.2 words) but less frequent in a corpus of biology research articles which Hyland (1998c) analysed specifically for hedging (20.9 instances per 1000 words). The differences in Hyland's figures can presumably be attributed to sampling variations and no conclusions can be drawn about the implications of differing frequencies for hedging in the two genres. However, because metadiscourse features are linked with the purposes and contexts of the writers, a description of the strategies for epistemic marking will provide insight into writer identity.

In the following extract from the discussion section of *IAEA*, the writer makes use of hedging to indicate that the propositions being advanced are matters of interpretation rather than undisputed fact:

(94) All these extracranial causes of intracranial air have in common egress of air into the spinal intrathecal space (the continuation of the cerebral subdural space) by breach of the theca. A traumatic mechanism **appears to be** the final common factor **in most cases**. Trauma mechanisms implicated include penetrating injury due to stab or deliberate needle puncture; compressive trauma applied to an abnormal cord and theca resulting in rupture of myelo-meningocoele; and trauma due to surgery The cases reported by Lerner and Bilaniuks[5] and by Swaid et al[6] however **indicate** that other mechanisms including local tumour invasion and/ or necrosis after radiotherapy **may** also produce fistulae by which air may enter the subarachnoid space (*IAEA*).

Where writers wish to adopt a more authoritative tone, boosters may be used to express certainty, for example:

(95) Close examination of the image **will always show** that the abnormality bears no relationship to the basic anatomy of the brain or cranium (*DCAR*).

(96) Of the various conditions affecting the stomach, gastric cancer **invariably** imparts a fatal outcome, death being usually due to the indolent yet relentless malignant process. Rarely a complication such as a gastropericardial fistula may be the cause of the fatal event (*GPFI*).

The example in (96) above combines use of the booster *invariably* with the hedges *usually, rarely* and *may*. The writers in choosing to introduce their report in this way are presenting an authoritative persona as they state the clinical significance of their case (Move 1) while also indicating that there may be room for explanations other than the malignancy for the inevitable death of a patient with stomach cancer and suggesting a possible rare and fatal complication (Move 2). Having tentatively established this niche, they can then proceed to

introduce the case of a patient of theirs who has died from this very complication of gastric cancer (Move 3).

There is a clear trend towards using content-oriented rather than reader-oriented hedges in the case reports (for a discussion of categories of hedging, see 3.3.2.3). The former are used to suggest a niche for the report, to postulate explanations for phenomena, to indicate stance towards reports of claims made in the literature and to indicate varying degrees of commitment to the writer's statements. There is not much use made of the reader-oriented hedges that are important in research articles, where the central purpose of the genre is the creation of new knowledge and where the writer needs to defer to the reader when making these claims (Hyland 1998c). It does occasionally occur, generally in the form of personal attribution and linked with claims that the writers make for the significance of their contributions to clinical knowledge, for example:

(97) **To our knowledge**, complete thrombosis of the Vein of Galen Malformation following endovascular treatment with lack of any complications has not previously been reported in the South African literature (*VGMA*).

(98) With surgery still the treatment of choice, **we believe** that scintigraphy combined with ultra-sound prior to FNA will make the surgeon aware of this possibility so as to follow the special therapeutic policy necessary to avoid dangerous spillage of the parasite (*HTGL*).

Reader-oriented hedges do not occur at all in the case presentation section of the reports, where the writers clearly distance themselves from the text and present themselves as careful observers of events. It is accuracy-oriented hedges that are the most frequent in this section, for example:

(99) **Some** of the folia in the right hemisphere were enlarged (Figure 2)…. A mass located in the right cerebellar hemisphere was found on MR imaging with **slight** mass effect on the right lateral recess of the fourth ventricle (Figure 1) (*DGCE*).

Writer-oriented hedges also occur in the case presentation section but to a slightly lesser extent. One function of this type of hedging is to indicate a lack of commitment to diagnoses, for example:

(100) This **was thought** to represent a large renal tumour and computed tomography (CT) was performed approximately four hours after the excretory urogram (*SSRH*).

(101) Because of the **reported** SAH, the patient was treated with nimodipine (*CVTH*).

Another function of writer-oriented hedging is to ascribe a finding to an impersonal agent, for example:

(102) The clinical and radiological findings **indicated** a sphenochoanal polyp (*SPOL*).

(103) Chest X-ray **was suggestive of** bilateral hilar adenopathy (*PCTU*).

The majority of hedges occur in the discussion section, which shows a range of all the pragmatic types of hedging. The type found here consists of content-oriented hedges, for example:

(104) The natural ostium of the sphenoid sinus is **usually** enlarged. **Occasionally**, the sinus of origin may be difficult to determine (*SPOL*).

(105) On the left, the pericardium is opened down to the diaphragm, which does not prevent herniation but cardiac strangulation or infarction is **less likely**[11] (*CTOR*).

There are also writer-oriented hedges which mitigate knowledge claims, for example:

(106) In our patient **it could be postulated** that adhesion of the lesser curve of the stomach to the diaphragm with subsequent trans-serosal extension of the tumour and invasion of the central tendon gave rise to the fistula…. It **may be speculated** that the gastroscopy actually exaggerated the pneumopericardium and hastened the patient's demise (*GPFI*).

Two instances of reader-oriented hedges also occur in this section:

(107) We **feel** that the reason for this discrepancy is that at our centre we analyze the case during both dynamic and static phases (*HTGL*).

(108) The reason for the rarity of diaphragmatic pleurisy leading to calcification in the relatively common diseases cited by Simon **is not clear** (*LDCA*).

There is almost a complete lack of what Hyland (1998c) terms discourse-based hedging strategies in the case reports. These are reader-oriented hedges which express mitigation of claims by "referring to experimental weaknesses, limitations of the model, theory or method used, or inadequate knowledge" (Hyland 1998c: 141). There is only one report in which the writers use this type of strategy as part of their argument for a reinterpretation of linear diaphragmatic calcification in diagnosis, as can be seen in (109) below:

(109) Simon[1] cites tuberculosis rheumatoid pleurisy and haemothorax following trauma, as well as asbestos exposure, as possible causes of linear diaphragmatic calcification. **The reason for the rarity of diaphragmatic pleurisy leading to calcification in the relatively common diseases cited by Simon is not clear.** A subpneumonic inflammatory effusion could conceivably be affected by reduced or altered movement of the diaphragm, leading to a more rapid resolution, with fewer sequelae. On the other hand, the ability of the asbestos fibres to penetrate the pleura causing an asymptomatic inflammatory reaction leading finally to calcification, could presumably be related to the extreme chronicity of the process, said to be not less than about 20 years and often much longer (*BAFE*).

Modal verbs are frequent in the radiology corpus. However, they tend to convey root rather than epistemic modality. These types of modality have been discussed in 3.1.2.1. Of the

148 modal verbs that occur in the radiology corpus, only 27 can be interpreted as epistemic and thus as hedges. The most frequently occurring modal in the case reports is the possibility modal *may* (64 instances). This is in line with the finding in Vihla's (1999, 2000) study of modals in medical genres that *may* is the most frequently occurring modal verb across a range of genres in the field. Vold (2006) reports in a contrastive study of modality in linguistics and medical research articles that *may* is the most frequent marker in the latter, comprising 37% of the total while it forms only 12% of instances in the former. Of the instances in the professional radiology corpus, 15 are epistemic and can be understood to mean *it is possible that.* Wherever this interpretation is possible within the context of the clause, I have categorised the instance as epistemic, even when the root meaning (*it is possible for*) is also possible. These two meanings of *may* exemplify the contrast Lyons (1977:750) makes between subjective modality, which qualifies an "assertion of the factuality of the proposition", and objective modality, which states an "unqualified assertion of the possibility of a proposition". Coates (1995: 61) has suggested that in academic writing this merging of the two interpretations of *may,* with the reader processing both simultaneously, is "becoming endemic" and Hyland (1998c) concurs with this. In the current corpus, about 20% of the uses of the modals show this overlap of meaning, for example:

(110) Variants for morality and artefacts on medical diagnostic images **may** sometimes be mistaken for disease (*DCAR*).
Root: *it can happen that the variants are mistaken for disease.*
Epistemic: *I believe that the variants can be mistaken for disease.*

(111) Several embolisation procedures **may** be needed before a significant reduction in blood flow through the malformation is affected (*AVGA*).
Root: *it can happen that several embolisation procedures take place before a reduction in blood flow is achieved.*
Epistemic: *perhaps embolisation will have to be attempted more than once to bring about a reduction in blood flow.*

By contrast *may* can be used (like *can*) to express root possibility alone, as in the example below:

(112) Lesions are usually single, well-circumscribed and lytic with involvement of the frontal or parietal bones, and rarely in the sphenoid (Cases 1 and 2) and occipital bones. The calvarial lesions **can** penetrate both the inner and outer table and have an associated soft tissue component. They rarely penetrate the dura. There **may** occasionally be diffuse involvement of the calvarium or a single lytic lesion with surrounding sclerosis (*PCTU*).

The modal can also be epistemic with no additional root meaning, for example:

(113) This pathology **may** be defined as midline arteriovenous fistulae with aneurysmal dilations of the median venous sac (*AVGA*).

Vold (2006) suggests that the frequency of *may* in medical articles may be accounted for by the fact that this duality of meaning gives an impression of objectivity even with the epistemic meaning and therefore is chosen in texts which generally tend towards impersonality. According to Vihla (2000) medical research articles have the lowest frequency of epistemic *may* in the medical genres investigated by her (1.8 per 1000 words). The professional radiology corpus demonstrates that epistemic possibility modals occur even less frequently in case reports than in medical research articles with a frequency of about 1 every 1000 words.

Other modals used with epistemic meaning occur less frequently in the corpus. These are *could, would* and *should,* for example:

(114) There is total absence of the middle layer of Purkinje cells in the affected areas and this **could** in part explain the decrease in central white matter (*DGCE*).

(115) The little girl came from Gordon's Bay, a coastal village near Cape Town. No evidence of exposure to asbestos could be obtained. Contact with the mineral **would**, in any case, be most unlikely to cause this x-ray appearance in so young a patient (*LDCA*).

(116) Since other cerebellar masses such as medulloblastoma, astrocytoma, ependymona, hemangioblastoma and metastases destroy the folial pattern and enhance with contrast, MR imaging **should** be diagnostic (*DGCE*).

It is almost always in the introductory moves (Moves 1, 2 and 9) and concluding moves (Move 12) of the case report that epistemic possibility is mentioned. These are the sections of the case report where rhetorical work on the part of the writer would be expected and where a more speculative tone frequently needs to be achieved.

Lexical verbs are a common means of expressing hedging. They are used to mitigate claims by reducing the certainty with which they are presented. Although they occur less frequently in the case reports than in research articles, there is a range of different verbs used from the two main categories distinguished by Hyland (1998c). The first of these is the category of epistemic judgemental verbs, which suggest the uncertainty of the mode of knowing, for example:

(117) It may be **speculated** that the gastroscopy actually exaggerated the pneumopericardium and hastened the patient's demise (*GPFI).*

(118) They are **thought** to result from coalescence of lobular acini during ductule involution or from ductule obstruction (DBCY).

There are also evidential verbs, which give a less than full endorsement to the source of a

claim, for example:

(119) Delayed torsions are rare, postulated due to adhesions between heart and pericardium which are **noted** to develop within three days of surgery (*CTOR*).

(120) A traumatic mechanism **appears** to be the final common factor in most cases (*IAEA*).

The case report corpus shows significantly fewer judgmental verbs than the research articles, with 15.6 per 10 000 words as compared with Hyland's (1998c) figure of 29.9. This is because the radiologists have less need to present claims as tentative, the statements in their reports consisting mostly either of propositions drawn from the literature and presented as accepted in the field or of facts that are the result of their own observations and that would therefore not be open to challenge from the reader. It is the primary aim of the reports to record a rare or unique presentation, diagnosis or management of a particular pathology, together with a survey of the relevant literature, and not all the writers make an attempt to advance new claims regarding diagnosis or clinical practice.

There are also a few instances of lexical verbs that are not reporting verbs being used for hedging, as in the following example:

(121) These **tend** gradually to enlarge and calcify (*LDCA*).

Epistemic adjectives, adverbs and nouns can also be used to realise hedging. Hyland (1998c) suggests that use of these grammatical classes to express hedging is characteristic of research writing. A striking difference between research articles and case reports is the frequency of hedges in the latter that express usuality, for example:

(122) Lesions are **usually** single, well-circumscribed and lytic with involvement of the frontal or parietal bones, and **rarely** in the sphenoid and occipital bones (Cases 1 and 2). The calvarial lesions can penetrate both the inner and outer table and have an associated soft tissue component. They **rarely** penetrate the dura. There may **occasionally** be diffuse involvement of the calvarium or a single lytic lesion with surrounding sclerosis[1] (*PCTU*).

This type of hedging comprises 25% of the hedges in the entire radiology corpus, with *usually* as the most frequent form (24 instances), followed by *occasionally* (10 instances). This contrasts with the situation in the research article corpus where *possibly* and *probably* are amongst the most frequent hedges in the category of nouns, adjectives and adverbs used in hedging and *usually* is rare (Hyland 1998c).

The differing patterns of use of these hedging adverbs point to a fundamental difference

between the two genres. While the goal of the research article is to generalise findings (Salager-Meyer 1994), in the case reports the focus is on clinical knowledge based on practice and experience, so that the data in the latter tends to be provided by reports of occurrence of pathologies and other clinical observations and the writers present themselves as reliable observers of real world phenomena. The rarity or otherwise of instances and reports of pathology are important in case reports since it impacts on the rationale for their implied claim to present new clinical experience.

Attitude markers in text create solidarity with readers and also suggest what a suitable response from them might be. These devices seem to be more important in the radiology corpus than in the research articles and, consisting predominantly of what Martin (2000a) would categorise in the Appraisal system as judgement, they help project the identity of the knowledgeable medical specialist, one who is able to characterise radiological signs, interpret them accurately, achieve successful diagnoses and influence the outcome of cases. This is effected by the use of evaluative markers in connection with the specifics of diagnostic practice and management, for example:

(123) Ultrasound plays an **important** role in terms of allowing one to evaluate circumscribed masses because it enables the differentiation of cysts and solid masses (*ENPC*).

(124) **Encouraging** results are now being obtained by embolisation techniques although the outlook in neonates is still **poor** with **better** results being obtained in infants and older children (*AVGA*).

The radiology writers also make use of this device as a strategy to draw attention to the significance or rarity of the case or the report, for example:

(125) **It is interesting** to note that gross haematuria, indicating rupture into the renal pelvis, was the presenting symptom in only two other cases[15,19] (*RRAA*).

(126) Learning to recognise these diagnostic pitfalls **is an important aspect** of the interpretation of medical diagnostic images (*DCAR*).

(127) **It is important** to recognise this condition because of the potential risk of injury during biopsy or surgical procedures (*TICA*).

The attitude markers used by the radiologists indicate values that are shared by the discourse community as a whole. These values are conveyed by pointing out what is important and implying that readers will agree with the attitude expressed. The use of these markers together with engagement markers and self mention allow the writers to signal their stance and the writer-reader relationship. In the case reports this stance is one of authoritative and professional objectivity, which the writers share with the members of their

community.

Self mention "refers to the degree of explicit author presence in the text measured by the frequency of first-person pronouns and possessive adjectives" (Hyland 2005: 53). The use of first person pronouns is labeled self-promotional by Harwood (2005) and traditionally, in the sciences, academic writing has been seen rather to be impersonal or "author-evacuated" (Geertz 1983). However, Hyland (2003b) has shown that scientific writing does show use of plural pronominal forms even in single author texts. This is borne out by the use of plural forms (*we* and *our*) in the radiology corpus, where they appear even in reports written by single authors. Self mention occurs in about half of the case reports and provides a means of allowing the writers to present themselves directly in the text and to draw attention to the significance of the particular case. In one case report the third person is used in the phrase, *the authors*.

The instances of self mention tend to cluster in particular moves. Frequently they occur in the introductory moves, particularly Move 3 of the abstract or the introduction, for example:

(128) **We** present two cases seen in the paediatric age group of tuberculosis involving the sphenoid bone (*PCTU*).

They occur less frequently in conclusions, for example:

(129) In conclusion although **our** results were satisfactory, **we** hope that this rare case of primary hydatidosis of the thyroid will prove useful to justify routine use of ultrasound in the evaluation of thyroid nodules, especially where a cystic lesion is suspected. With surgery still the treatment of choice, **we** believe that scintigraphy combined with ultrasound prior to FNA will make the surgeon aware of this possibility so as to follow the special therapeutic policy necessary to avoid dangerous spillage of the parasite (*HTGL*).

Commenting on the significance of the plural first person pronoun in the introductory and concluding sections of written case reports, Hunter (1991: 98) argues that:

> [it] modestly invokes a team effort and anticipates the time when the phenomenon presented will be accepted by the clinical community as part of the common fund of knowledge…. [It] proclaims an intersubjective understanding of the phenomenon that "we" believe will ultimately be shared by all of "us", scientific medicine in general.

Self mention on the part of the writers may also occur in the discussion section of the reports, where generally the patient is briefly referred to in order to remind the reader of the case that is the primary focus of the report and to indicate the relevance of the discussion to it, for example:

(130) owever a contrast study is indicated to identity the site of the fistula and sometimes, as in **our** patient, to assist with the pathological diagnosis (*GPFI*).

This is in direct contrast with the case presentation section of the report, where instances of self mention never occur. Here the story of the patient's career is told as a series of facts and in using this detached, impersonal approach, the writers align themselves with the community of practitioners who share "scientific objectivity and the clarity of thought and communication essential to good patient care" (Hunter 1991: 99; cf also Segal 1993a).

In the sections of the report where self mention does occur, the writers are choosing to adopt a particular authorial identity as authoritative members of a professional community who share an approach to developing clinical knowledge.

Engagement markers are rhetorical devices that "explicitly address readers, either to focus their attention or include them as discourse participants" (Hyland 2005: 53). The professional case reports use particular types of engagement markers, which differ from those used in the research articles. There are no direct imperatives and only one report uses inclusive *we*, where the writers signal solidarity with their readers as part of a strategy to persuade them to accept their argument (as we have seen above, an argument of this sort tends to be rare in the radiology corpus):

(131) Perhaps **we** should revise **our** interpretation of linear diaphragmatic calcification seen on the chest x-ray *(LDCA).*

The most common means that writers of the reports employ to position the reader are directives expressed by means of the deontic necessity modals, *should* (89%) and, much less frequently, the more authoritative *must* (5%), as in the following:

(132) There extremely ill patients **should** be aggressively resuscitated, admitted to an intensive care unit, given isotropic support and antibiotics and ventilatory support **should** be considered.[3] Once the diagnosis has been confirmed, surgical intervention **should** take place as soon as possible (*GPFI*).

(133) On the right side, the pericardium **must** be closed, either by suturing the bare edges of the pericardium to the epicardium,[12] or patching the defect with parietal pleura[13] or fascia lata[14] (*CTOR*).

Two writers make use of a construction with the adjectives *important or interesting* followed by *to* + V, for example:

(134) If both the maxillary antrum and the sphenoid sinus are opaque, continuity between the polyp and the correct sinus of origin **is important to document** (*SPOL*).

Hyland (2002b) distinguishes levels of imposition in directives. He classifies them according to the type of activity they instruct the reader to undertake, namely, textual acts (referring the reader to other parts of the text or to other texts), physical acts (either real world or research related) and cognitive acts (indicating how an argument should be understood) and shows how they differ in the weight of obligation implied, ranging from the less imposing referring functions to the more authoritative cognitive category directives. The only categories represented in the radiology corpus are physical (84%) and cognitive (16%) acts. The examples above are all of physical acts; cognitive acts are exemplified in the following:

(135) It is interesting **to note** that gross haematuria, indicating rupture into the renal pelvis, was the presenting symptom in only two other cases (*RRAA*).

An examination of directives in the corpus of radiology reports reveals that there are also further gradations of authority within these categories. For example, the use of *should* imposes on the reader less than *must* and (135) above displays a less emphatic structure than the bald imperative, *note that* would.

The use of directives in the professional radiology corpus, as explained above, allows the writers of the reports to retain an impersonal and objective style (Hyland 2002b), while at the same time bringing readers into the text as fellow practitioners who share an understanding of the need for professional norms and requirements. The focus on physical acts mirrors the focus of the genre on diagnostic and clinical practice.

4.6.1.4 Metadiscourse choices in different moves in the professional case report

It was noted in 2.2.3 that metadiscourse is linked with rhetorical context. Hyland (2005: 112) has compared metadiscourse choices across different genres to demonstrate that metadiscourse choices "not only help writers achieve their rhetorical goals, but help define the genres and contexts in which they write". If investigating metadiscourse patterns provides analysts with insights into the purposes of writers within different discourse communities and in different types of texts as argued by Hyland, it should also be able to reflect the changing purposes of various moves within a text as it unfolds. A discussion of the patterns that emerge at the move level of genre follows in this section.

Table 4.30 below shows the aggregated occurrences per 1000 words of interactive and interactional metadiscourse features in each move of the professional radiology corpus. The three moves of the abstract have been included with those that occur in the introduction

since the goals of these sections are the same, as has emerged in the discussion of the abstract in 4.3.4.

It was noted in 4.6.1.1 that the professional radiology case reports are characterised by a predominance of interactional metadiscourse devices. The table below shows that, in the introduction, it is Moves 1 (*Establishing territory*) and 2 (*Establishing niche*) in the abstract and the introduction that are, to a large extent, responsible for the frequency of interactional devices. These moves (and Move 2 in particular) have as their goal establishing the rationale for the report and persuading the reader that it will add to clinical knowledge. The devices that are most common here are evidentials (17 per 1000 words in Move 1 and 22 in Move 2) and hedges (17 per 1000 words in Move 1 and 36 in Move 2) (see Appendix 7). Evidentials and hedges are devices that allow writers to represent themselves as credible members of the community, seeking to persuade readers to consider their claims. Move 1 also has some instances of boosters (2 per 1000 words) and attitude markers (7 per 1000 words); Move 2 has no instances of boosters but, in addition to attitude markers (7 per 1000), makes use of self mention (4 per 1000 words). These various interactional devices have the effect of presenting an authoritative and knowledgeable persona

Table 4.30 Interactive and interactional metadiscourse features per 1000 words in each move in the case report

Moves	Total words	Interactive		Interactional	
		No. of instances	Per 1000 words	No. of instances	Per 1000 words
Abstract/Introduction					
Move 1	817	4	4.89	36	44.06
Move 2	535	5	9.35	28	52.34
Move 3	483	6	12.42	10	20.70
Total	**1,835**	**15**	**8.17**	**74**	**40.33**
Case presentation					
Move 4	1,223	9	7.36	12	9.81
Move 5	2,623	54	20.59	13	4.96
Move 6	555	9	16.22	2	3.60
Move 7	441	5	11.34	1	2.27
Total	**4,842**	**77**	**15.90**	**28**	**5.78**
Discussion/conclusion					
Move 8	495	7	14.14	18	36.36
Move 9	750	13	17. 33	53	70.67
Move 10	4,735	35	7.39	244	51.53
Move 11	1,346	5	3.71	69	51.26
Move 12	590	5	1.69	45	76.27
Total	**7,916**	**65**	**8.21**	**429**	**54.19**

Moves 8 (*Re-establishing territory*) and 9 (*Re-establishing niche*) have a similar persuasive function and make use of the same metadiscourse devices as noted in Moves 1 and 2 in

order to achieve the purpose of the writers in establishing a territory and gap in clinical knowledge. Move 9 (the crucial move in this regard, since it generally re-establishes the gap claimed in the introduction) shows a consistently greater number of these features than Move 8 and also some instances of all the other interactional features (i.e. boosters, attitude markers, self mention and engagement markers), confirming that the writer in these moves is indeed involved in important rhetorical work.

Interactional devices are important in the other moves of the discussion section also. In Moves 10 (*Discussing problem*) and 11 (*Discussing response to problem*), writers use evidentials to indicate their sources of information in the wider disciplinary literature and to show their membership of the community. In addition, they make use of hedges to indicate a respect for the clinical knowledge of their readers and a tendency to make a more tentative commitment to their propositions. Boosters, attitude markers, self mention and engagement markers also occur, although to a lesser extent. Move 12, the concluding move and therefore one which would be expected to be high in rhetorical interaction, shows instances of all interactive devices, with a particular increase in the frequency of hedges and attitude markers.

The figures for the case presentation section in Table 4.30 demonstrate that the frequency of interactive metadiscourse markers in these moves is double that of the other sections of the case report. What is responsible for this is, firstly, the increased occurrence of endophoric markers in Move 5 (*Reporting investigation of problem*), where the references to figures in the text indicate the images that are relevant to the diagnosis of the pathology and, secondly, the use of code glosses in Moves 4 (*Reporting problem*), 5 (*Reporting investigation of problem*) and 6 (*Reporting response to problem*), where instances of this device provide technical explanations of equipment or additional specific details in order to assist the reader in interpreting the text. All the features mentioned organise the information in the narrative, taking into account the needs of the readers, guiding them through the information in the text and revealing a writer who is professional and objective in presenting the facts of the case.

Having provided an overview of the features of metadiscourse across the moves of the case report, I will briefly account for the functions of each particular metadiscourse device in the various moves, illustrating them visually. For ease of comparison each graph is set up using the same scales. Aggregated frequencies are referred to in the discussion and detailed figures for the frequencies in each individual move are provided in Appendices 6 and 7.

Transition markers, as discussed in 4.6.1.2, occur fairly infrequently in the professional radiology texts (on average 2.2 per 1000 words) as shown in Figure 4.11 below:

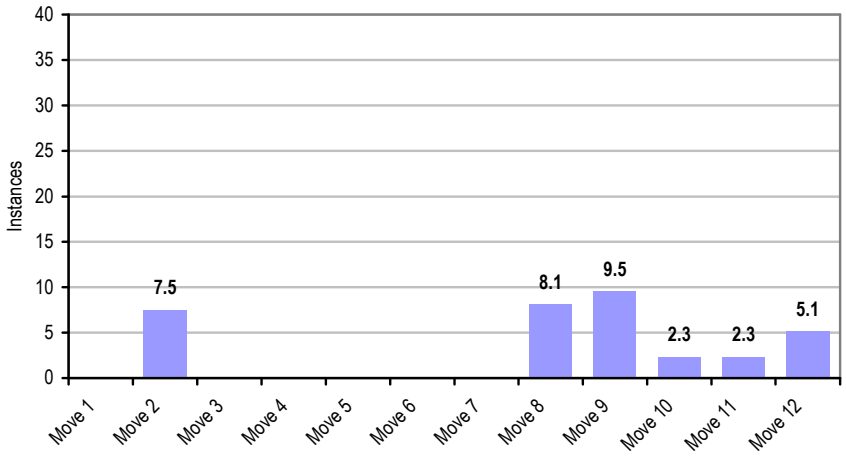


Figure 4.11 Frequency of transition markers per 1000 words in moves in professional case reports

The occurrence of transition markers is most frequent in the introductory moves and the moves which introduce the discussion section. This is because these are the moves that are characterised by persuasive goals and that may contain arguments. It is these goals that sometimes involve showing the internal relations between propositions by means of transition markers (see discussion of transition markers in 4.6.1.2). Generally however, the writers assume a high level of knowledge in their readers and do not make this sort of link explicit.

Frame markers occur even less frequently (an average of 0.6 instances per 1000 words) in the corpus of radiology articles. As mentioned in 4.6.1.2, short texts do not generally need frame markers. In addition, the case report follows a predictable move structure and the writer has little need to guide the knowledgeable reader through the report.

The graph below indicates where frame markers occur in the report. They are generally used to label lists, such as findings. In Move 3, frame markers can be used to orientate the reader to the paper or the case and there is a single instance of the conclusion being marked as such by use of the frame marker, *in conclusion*.

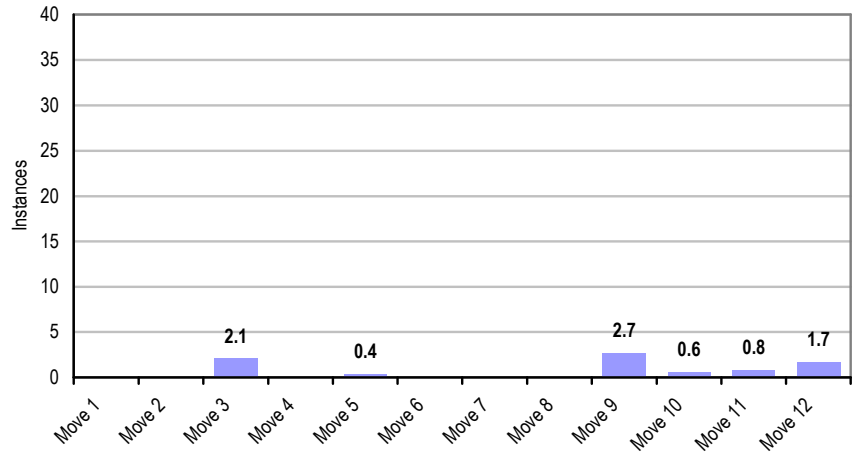


Figure 4.12 Frequency of frame markers per 1000 words in moves in professional case reports

Endophoric markers are the most frequent interactive metadiscourse device in the professional case reports (4.1 instances per 1000 words).

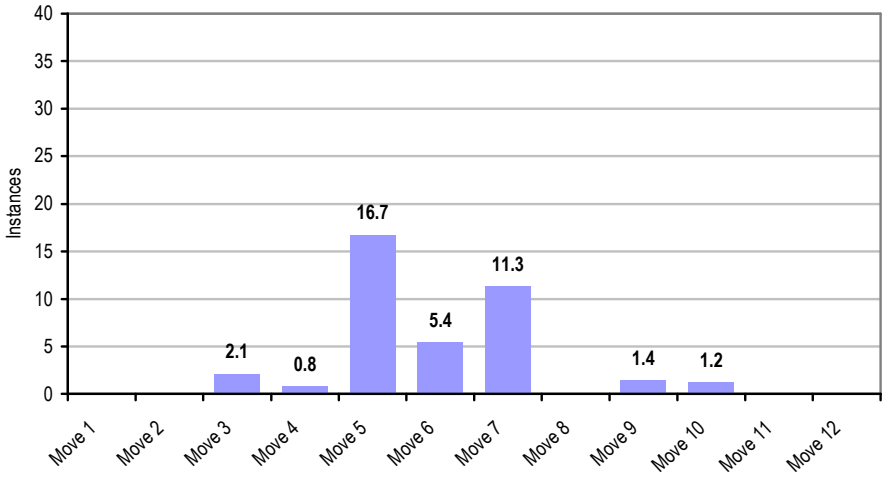


Figure 4.13 Frequency of endophoric markers per 1000 words in moves in professional case reports

Figure 4.13 above demonstrates that the most frequent occurrence of endophorics is in Move 5 (*Reporting investigation of problem*). This is the result of the routine reference to images in the text, an important means of sharing with the reader evidence for the clinical decisions that are reported in the case presentation proper. Some writers also use endophorics in Move 6 (*Reporting response to problem*) to refer to images that show stages in the management process or in Move 7 (*Evaluating response*) to refer to images used to support claims of a positive result of treatment. The frequency of endophorics in the other

moves in Figure 4.13 reflects a single example in each move and it is not possible to establish any patterns. These radiological images and the references to them in the case presentation moves are important in presenting the writer as a professional who is competent in the interpretation of such images.

Code glosses represent the ways in which the writer ensures that readers will be able to follow the meaning of the text by reformulating or exemplifying what has been said. Code glosses (on average 3.8 instances per 1000 words) appear spread throughout the case report in all moves, apart from the evaluative Move 7, as demonstrated in Figure 4.14 below:

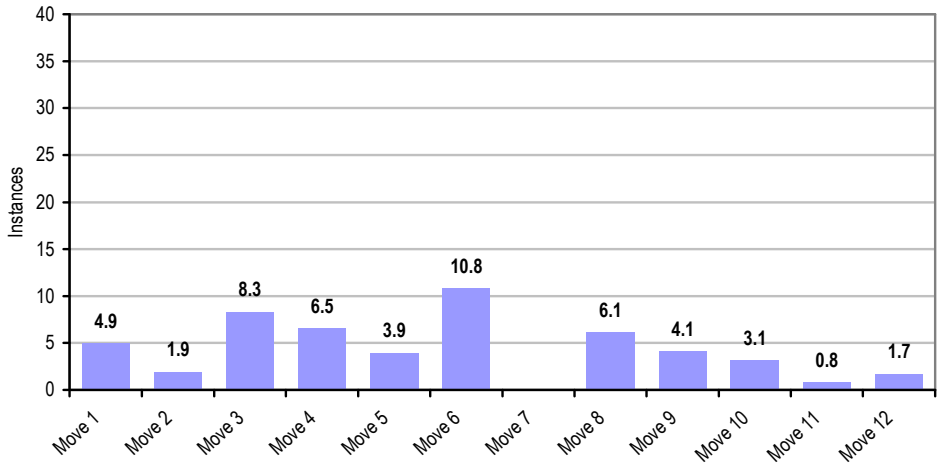


Figure 4.14 Frequency of code glosses per 1000 words in moves in professional case reports

This is the only interactive device that is found spread across most of the moves of the report and that does not seem to favour either, on the one hand, the introduction and discussion sections (as with transition markers) or, on the other, the case presentation section (as with endophoric markers). The reason for this is that the writer's perceived need to provide necessary background for members of the discipline community (either because they may not be familiar with the particular type of case or because they wish to show technical expertise) is not linked with the goals of any particular move but rather with the medical register of the texts.

Evidentials occur across a range of moves in the radiology reports as indicated in Figure 4.15 below. Moves 2 (*Establishing niche*) and 11 (*Discussing response to problem*) are the moves with the greatest frequency of citations proportional to their length. Although Move 2 has the purpose of establishing a niche for the presentation of new clinical knowledge in the

report, this may be achieved in different ways. In actual fact, only 3 of the reports in the current corpus (i.e. 15% of the corpus) do this by means of referring to the literature to indicate the gap; nevertheless, when writers choose to do this, they use multiple citations. Other writers obviously draw on their own clinical experience or on knowledge that is well established within the community for establishing a niche and therefore do not make reference to the published literature. The same principle applies to the incidence of evidentials in Move 1 (*Establishing territory*). Where the radiological emphasis in the report is on treatment (as in *VGMA*), this tends to increase the frequency of citations in Move 11 (*Discussing response to problem*).

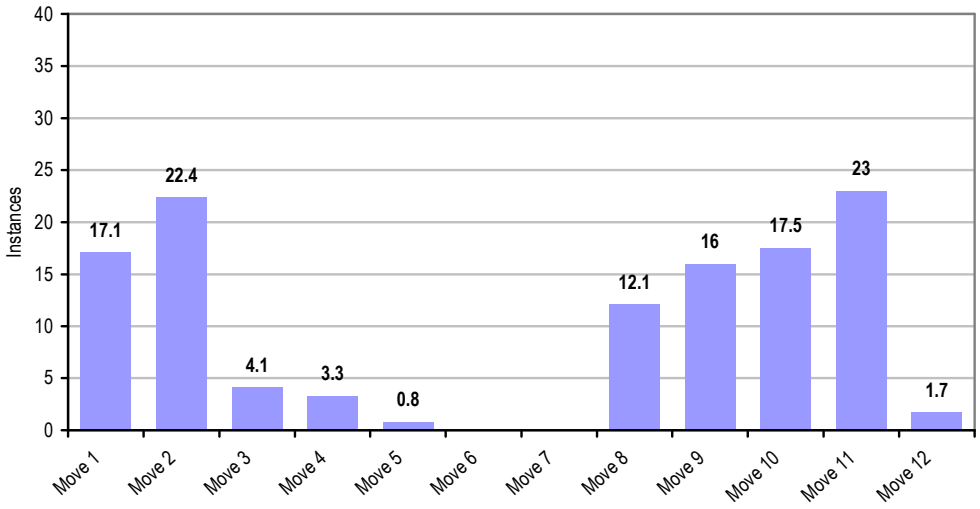


Figure 4.15 Frequency of evidentials per 1000 words in moves in professional case reports

It should be noted that there are never citations in the abstracts and that it is the citations in the introduction proper of the case report that account for the occurrences shown above. Swales (1990) has observed the tendency for citations to occur across the various moves of the introduction and this is confirmed here.

The goals of Moves 1 and 2 are similar to those of Moves 8 and 9 respectively and the establishing of territory and niche can make use of references to the literature to support statements of clinical significance, background information and the rarity of the condition. Moves 10 (*Discussing problem*) and 11 (*Discussing response to problem*) generally summarise relevant literature regarding the pathology and its management and, therefore, citations would be expected to be used in this process. This is not inevitable though, as the writers sometimes appear to draw on their own experience, and *TICA*, although it has two end-text references, has no citations at all. The fact that the writers are able to make

statements on their own authority in this way suggests an authoritative and professional persona able to present a case and discuss it with knowledgeable peers.

Hedges and boosters differ in frequency of occurrence in the corpus, as indicated in Figure 4.16 below. The case presentation section is clearly distinguished from the other parts of the report with regard to frequency of epistemic metadiscourse markers. Not only are there fewer hedges, they are almost exclusively accuracy-oriented hedges, particularly attribute hedges (70%), which are used to "specify more precisely the attributes of the phenomena described" (Hyland 1998c: 164). There are also some reliability hedges in this section (30%), expressing uncertainty.

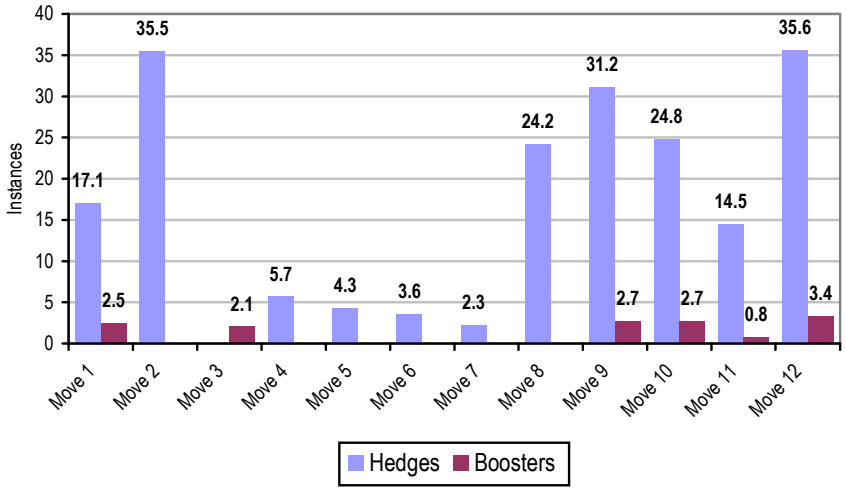


Figure 4.16 Frequency of hedges and boosters per 1000 words in moves in professional case reports

The moves in the discussion section, including the conclusion, in addition to accuracy-based hedges, show the presence of writer-based hedges. Hyland (1998c: 170) explains how these two types contrast:

> Accuracy-based hedges are proposition-focused and seek to increase precision by referring to the exact state of knowledge or to how the proposition is to be understood; writer-oriented hedges are writer-focused and aim to shield the writer from the possible consequences of negatibility by limiting personal commitment.

It is because the discussion section is characterised by more general claims and statements that it may require the writers to make decisions regarding the extent of their commitment to these propositions. Otherwise the use of hedges tends to suggest a persona concerned

with an accurate representation of facts and observations.

Boosters do not appear at all in the case presentation section of the reports although there are a few instances in the other sections, suggesting that when claims are made the writer may balance the tentative negotiation of claims with the signaling of a sense of confidence.

Attitude markers have an important role in contributing to the presentation of the persona of a knowledgeable medical specialist, as discussed in 4.6.1.3. The graph in Figure 4.17 below indicates the moves in which this category of metadiscourse marker is most frequently found:

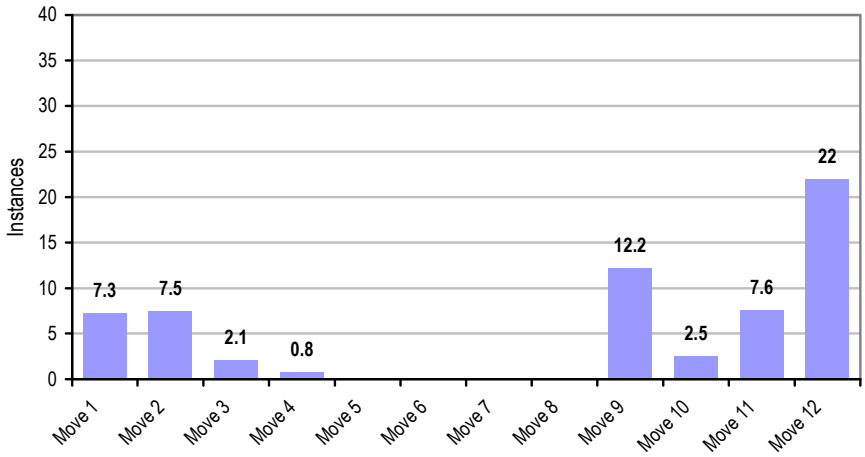


Figure 4.17 Frequency of attitude markers per 1000 words in moves in professional case reports

The introductory moves both at the start of the report and at the beginning of the discussion permit the writers to display their professional judgement and to suggest to their readers that they would also respond in the same sort of way. In the discussion section, Move 11 has the purpose of evaluating the management of the condition discussed in the previous move. It follows that this sort of evaluation allows the writer to express judgements, thus accounting for the use of attitude markers. Move 12 concludes the report and, where writers choose to include this optional move, they generally seize the opportunity to confirm the purposes of their reports by the frequent use of attitude markers.

Self mention occurs characteristically infrequently in academic writing. Hyland (2001) argues that, while impersonality is generally endorsed in research writing, writers also need to make a new contribution and to demonstrate their authority to do so. One way in which this is explicitly achieved is by means of mentioning the authorial self and this device is used

in particular ways in the professional case reports.

The most frequent use of self mention in the reports occurs in Move 3 of the abstract and of the report introduction (*Presenting present work*), as indicated in Figure 4.18 below. This is because mention of the author(s) is a characteristic way to announce the case, suggesting an authoritative and competent persona. In the other moves, self mention most frequently takes the form of the possessive, associating the author(s) with the patient or occasionally the medical centre where the diagnosis took place, thus adding to the identity being suggested in the report of a competent professional.

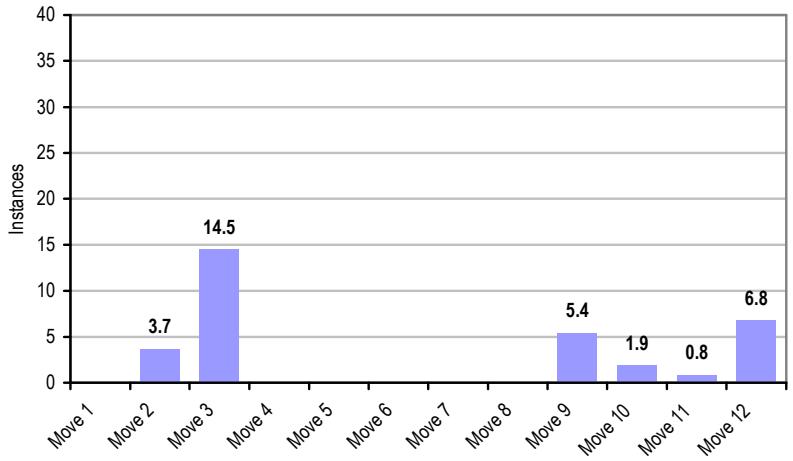


Figure 4.18 Frequency of self mention per 1000 words in moves in professional case reports

In Move 12, the conclusion, self mention may be used in the making of claims, sometimes together with hedges, and this strengthens the sense of the writer in the text as a creator of clinical knowledge. The two moves that establish or re-establish the niche (Moves 2 and 9) also show examples of self mention, mostly as part of the epistemic marker, *to our knowledge*, making it clear that the authors are interacting appropriately with the disciplinary community by acknowledging that they have to negotiate their claims.

Engagement markers make the presence of the readers explicit in the text by addressing them directly. They do not occur frequently in the corpus but play an important role in projecting an appropriate persona for the writer. These markers occur only in the discussion section as shown in Figure 4.19 below, with Move 11 (*Discussing response to problem*) and Move 12 (*Stating conclusions*), in particular, presenting opportunities for the writers to express their positions on diagnosis or management by the use of directives, while at the same time suggesting that the reader will be in agreement.

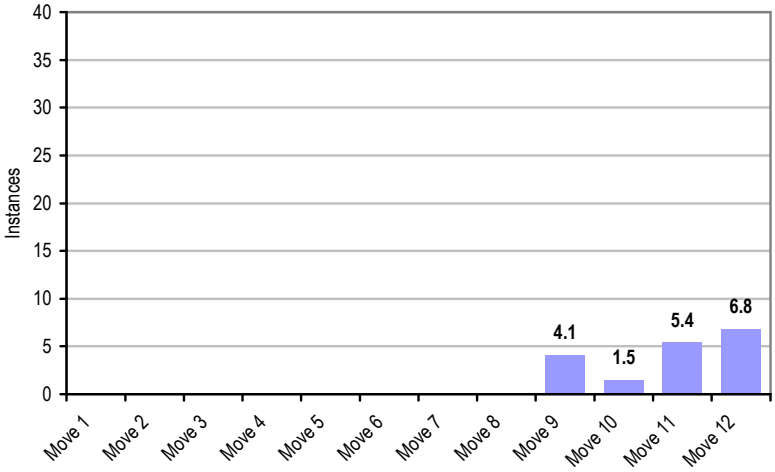


Figure 4.19 Frequency of engagement markers per 1000 words in moves in professional case reports

4.6.1.5 Conclusion

It is clear that the case report proper, with its account of the disease trajectory of an actual patient, shows a rather different profile of metadiscourse markers from the introductory moves and the discussion and conclusion. The case presentation section is characterised by the use of endophoric markers, particularly in Move 5, for references to x-ray or scan images. The comparative absence of interactional markers in this section of the report tends to suggest an objective observer of the patient and of the diagnostic process.

The only marker which is found across all sections of the report is the code gloss, since providing the necessary background details for the readers is not related to the goals of individual moves but rather to expressing the particular persona of a knowledgeable professional.

The introductory moves and Move 8 and 9, which function as the introduction to the discussion and which re-establish the rhetorical claims made in Moves 1 and 2, are found to be high in interactive devices, especially evidentials and hedging. The only transition devices also occur in these parts of the texts. Frame markers are found rarely in the reports but do occur occasionally in Move 3 where they can be used to orient the reader to the paper or case that is to be presented and also occasionally in the discussion to present lists of findings or features. Move 12 is distinguished from the rest of the discussion by the lack of evidentials (not surprising in a conclusion) and the frequency of hedges and attitude markers. The frequency of interactional metadiscourse features in the case reports (especially in relation to research articles in a similar field) is a clear indication of the sort of

rhetorical work the writers need to engage in to present themselves as professional and competent practitioners who create new clinical knowledge in the undertaking of the diagnosis and management of their patients.

The interactive and interactional discourse choices discussed above, as well as the writer purpose and identity they realise, will be compared in the next section with those found in student texts.

4.6.2 Comparison of metadiscourse in the two corpora of case reports

Because the relationship between writer and reader is an important feature of the differences between the professional case reports and the student assignments, a description of metadiscourse, as one manifestation of purpose and identity in the texts, is needed in order to focus on the explicit means by which the writers in each corpus attempt to engage with their readers, while providing information and suggesting their stance.

In this section, the patterns that were discussed above will be compared with those pertaining in the student reports, firstly by means of a general comparison (4.6.2.1) and then a detailed comparison of interactive (4.6.2.2) and interactional (4.6.2.3) features in turn. The comparison is made both in terms of the frequency of metadiscoursal features and, more particularly, the types of device used.

4.6.2.1 Comparative characteristics of metadiscourse in professional and student case reports

As Figure 4.20 below shows, the same pattern of metadiscourse use occurs in both the professional and the student corpus, with a similar proportion of interactive and interactional devices in each.

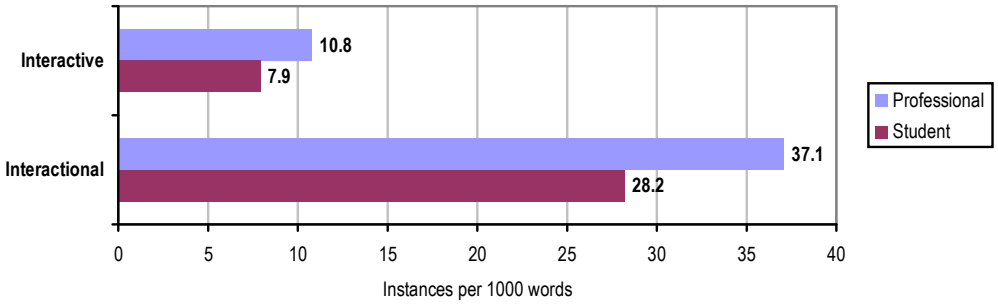


Figure 4.20 Frequency of interactive and interactional metadiscourse functions in student and professional case reports

There are, however, more instances of both interactive and interactional devices per 1000 words in the professional texts, indicating in general a greater ability of the expert writers to engage with readers in appropriate ways.

For many of the metadiscourse subcategories in the two corpora, the frequencies of occurrence are not dissimilar. However, with regard to interactional markers, frame markers and code glosses are slightly more frequent in the student corpus and the use of endophoric markers is particularly limited, as demonstrated in Figure 4.21 below:

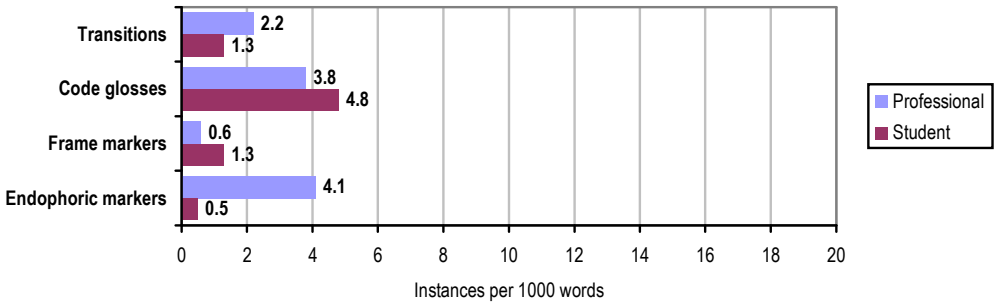


Figure 4.21 Interactive metadiscourse functions in student and professional case reports

With the interactional functions, the most noticeable difference between the corpora is that there are proportionally fewer hedges and evidentials in the student texts, as seen in Figure 4.22 below:

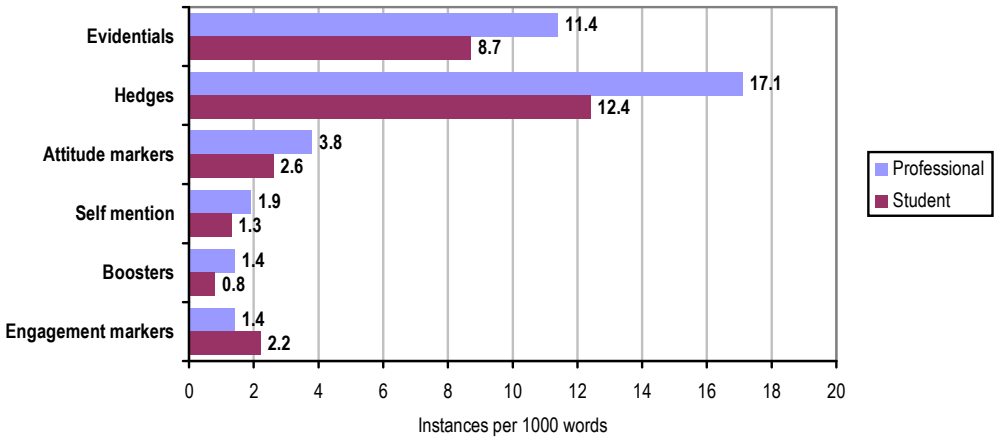


Figure 4.22 Interactional metadiscourse functions in student and professional case reports

Table 4.31 below indicates the frequency of occurrence of the various metadiscourse

subcategories in both the professional and student case reports:

Table 4.31 Interactive and interactional functions in the professional corpus (total words 14 593) and student corpus (total words 28 343)

Category	Professional			Student		
	No. of instances	Per 1000 words	% of total instances	No. of instances	Per 1000 words	% of total instances
Interactive	**157**	**10.8**	**22.5**	**224**	**7.9**	**21.9**
Transition markers	32	2.2	4.6	37	1.3	3.6
Code glosses	56	3.8	8.0	136	4.8	13.3
Frame markers	9	0.6	1.3	36	1.3	3.5
Endophoric markers	60	4.1	8.6	15	0.5	1.5
Interactional	**541**	**37.1**	**77.5**	**798**	**28.2**	**78.1**
Evidentials	167	11.4	23.9	247	8.7	24.2
Hedges	249	17.1	35.7	351	12.4	34.3
Attitude markers	56	3.8	8.0	75	2.6	7.3
Self mention	27	1.9	3.9	38	1.3	3.7
Boosters	21	1.4	3.0	24	0.8	2.3
Engagement markers	21	1.4	3.0	63	2.2	6.2
Total	**698**	**47.8**	**100.0**	**1022**	**36.1**	**100.0**

The reasons for the differences in the occurrence of these functions will be discussed in the next section and a description of the way the various subcategories are realised will be given.

4.6.2.2 Comparison of interactive metadiscourse features

There are fewer interactive metadiscourse features in the student corpus (7.9 instances per 1000 words) compared with the professional corpus (10.8 instances), although the former has a greater number of code glosses. Each metadiscourse device is discussed below and patterns of use are compared with the professional corpus with regard to frequency of the device across moves and the strategies used for realising it.

Transition markers in the professional case reports are shown in Table 4.31 to be low in frequency (2.2 instances per 1000 words). In the student reports, with 1.3 instances, there are proportionately even fewer of these devices. About half of the transitions in the former are to be found in Moves 8 (*Re-establishing territory*) and 9 (*Re-establishing niche*). These moves are not found at all in the student corpus (see discussion in 4.4.2), which may account for this difference. The other moves in which the writers may make claims show a corresponding tendency to use transition markers, as indicated in Figure 4.23 below. However, the actual number of instances is very low.

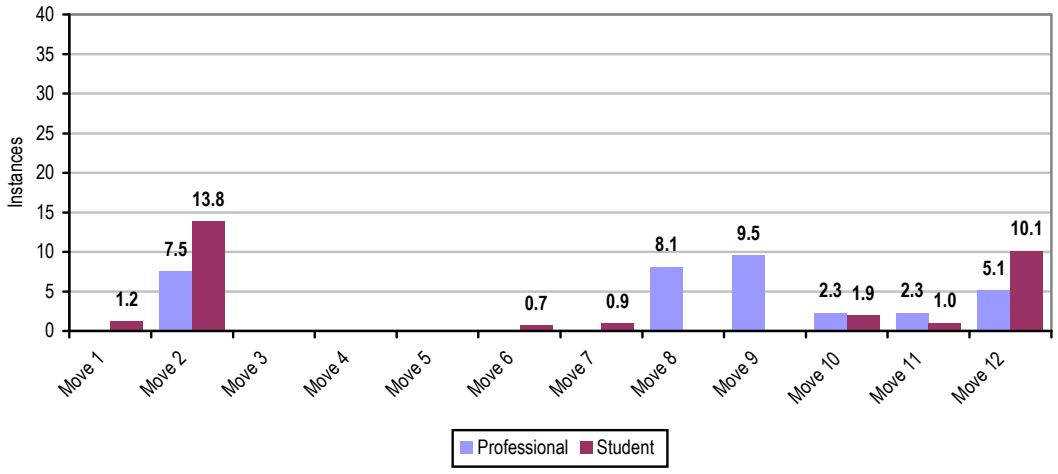


Figure 4.23 Frequency of transition markers per 1000 words in moves in professional and student case reports

While the professional reports show no examples at all of transition markers in the case presentation section, there are two instances in the student corpus:

(136) It is unclear if the psychological changes had anything to do with the illness. "Sometimes chemical imbalances in the blood due to renal failure cause patients to behave strangely" (Dr. Gordon, personal communication, August 10, 1999). It might **also** be related to the fact that the patient is Jehovah's Witness and is unhappy about having to think of going against her religion to get better (*ARF*).

(137) "The patient covered in this case study is given 5 years to live unless the patient accepts a kidney transplant. A kidney transplant could mean full recovery. **However**, the patient's spiritual beliefs and the availability of kidneys for transplantation for specific tissue types is going to be a problem" (Dr. Gordon, personal communication, August 10, 1999) (*ARF*).

These instances occur in a single report (*ARF*), where the writer reveals some of the thinking behind the scenes, as it were, by directly reporting comments from the doctor who is handling the as yet unresolved case. This sort of insight into the uncertainties and problems which characterise the diagnosis and management of a case never appears in the professional reports which, while equally concerned with the unfolding narrative of a patient's career, deliberately smooth over the diagnostic process to provide an impersonal and objective retrospective account.

Frame markers are used by writers to guide their readers through texts. The fact that the student reports are on average about twice the length of those of their professional counterparts (1641 words as compared with 860 words) and show much greater variation in terms of structure, as evinced in the discussion of the genre structure and move stability in

4.4.2, might incline one to predict a marked increased frequency in the use of frame markers. There is, however, only a small increase in the rate of frequency in the student corpus.

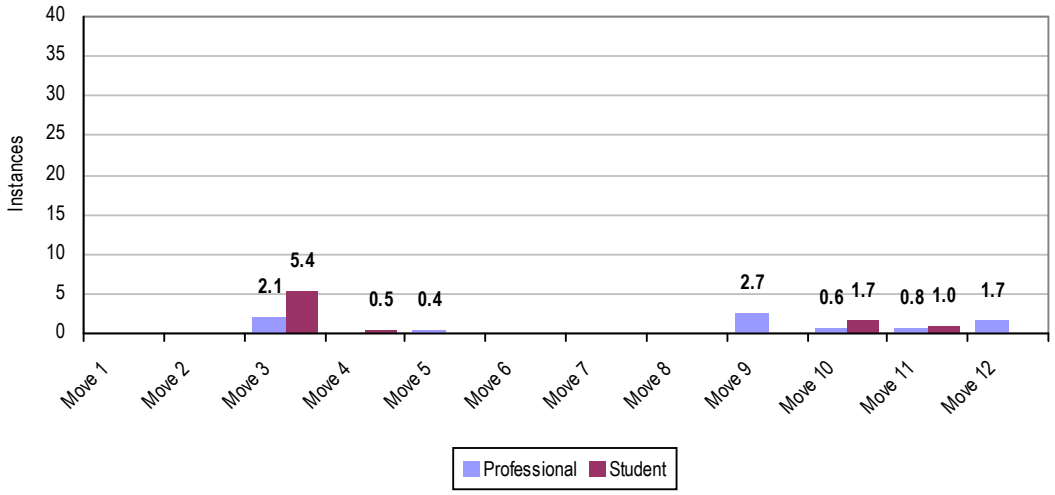


Figure 4.24 Frequency of frame markers per 1000 words in moves in professional and student case reports

In the discussion of this metadiscourse feature as it is used by the expert writers (4.6.1.2), it was noted that one important possible device used for indicating text structure is the announcement of discourse goals. This is rare in the student corpus, with only one example occurring, and the writers tend rather to make use of sequencing devices to frame their discourse, for example:

(138) **Following here** is a closer look at Miss Z's case and at astrocytomas at large (*ASC*).

(139) **Clinical Features**
A) Soft tissue changes The soft tissue changes includes: Skin thickening. Increased sweating. Increased sebum production. Enlargement of lips, nose, and tongue. Increased heel pad thickness. Arthropathy. Visceromegaly. Carpal Tunnel Syndrome
B) Acral enlargement: These include large hands and feet (*ACR*).

(140) **The next step is to look at the Aetiology for the ARF**…**1**. What is the cause of the hypovolaemia **2.** What is the cause of the hypotention (hypovolaemia, drugs, shock) **3**. Is there any history of sepsis (fever, hypothermia; T B) **4.** What drug is involved (antibiotics, ibuprofen) **5**. Is there history of hypertension, diabetes, prostatism or haematuria? **6.** Note that patient with diabetes or myeloma are at higher risk of contrast induced renal impairment (avoid dehydration) **7.** Backache may suggest that pelvi-ureteric obstruction may be the cause. **8**. Fluid overload signs or dehydration (*ARF*).

The use of lists and numbers to sequence parts of the discourse, as exemplified in (139) and (140) above, occurs in 50% of the reports. This style of writing focuses on guiding the reader through the necessary steps of the exposition and shows a direct link with textbook

sources drawn on by the students in their reports, as discussed in 4.4.2.7. While the specific outcomes which were proposed by the lecturer clearly specify "signs of extensive reading and synthesis of different ideas/fact/opinions" in terms of "[t]exts consulted, integration of different material/facts/opinions and rewritten in own words" (Appendix 4), many of the students are struggling in the discussion sections of their reports to move beyond reproducing material from textbooks. This material is comprehensive in coverage and thus is characterised by sequencing devices and taxonomies to assist the reader. The student writers are clearly not in control of the genre in terms of understanding the way in which the moves and sections of the report should unfold and the way in which relevant information should be selected from sources.

Endophoric markers are a frequent and characteristic feature of the reports in the professional corpus, as indicated in 4.6.1.2. In the student corpus, by contrast, endophorics account for less than 2% of metadiscourse markers and occur in 0.5 instances per 1000 words (Table 4.31).

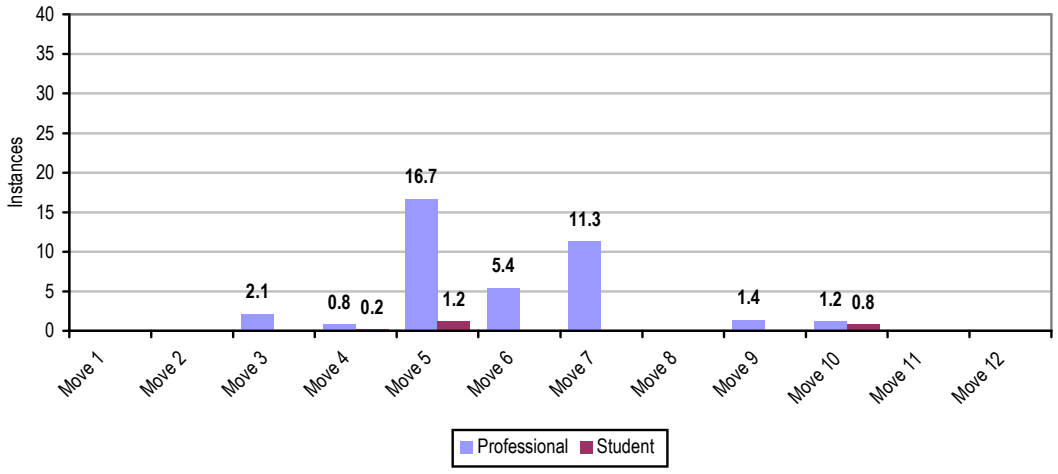


Figure 4.25 Frequency of endophoric markers per 1000 words in moves in professional and student case reports

Illustrative material occurs routinely in the professional articles. By contrast, only four of the student writers refer to illustrations, with two of these references to radiographs in addenda rather than to illustrations in the body of the text. Both types are exemplified below:

(141) Spina bifida occulta is characterised by a failure of one or more of the vertebral arches to meet and fuse in the third month of development. The spinal cord and meninges are unharmed and remain within the vertebral canal (**Fig 1A**) (Umphred, 1995) (*SBM*).

(142) The doctors referred her to X-ray department to have radiographs of chest as she was coughing and the doctor was querying lungs metastasis, pelvis because she had nodes in her groin, tib/fib and femur. The radiograph shows no metastasis the chest and nothing on the

lower limbs. Refer **Addendum B** (*RSA*).

The explanation for the scarcity of references to illustrations, as indicated in Figure 4.25 above, seems to lie in the fact, mentioned in 3.2, that the lecturer who set the assignment required the students to duplicate all the radiographs relevant to their cases and to submit them as addenda to their reports, rather than including them in the text. It is possible that not including the radiographs as illustrations within the text may discourage the student writers from making references to them.

Where illustrations are included in the text, they are not specific to the case under discussion in the report but are derived from a textbook as in (141) above. In the corpus of professional reports, illustration from another source than the particular case under review in the report is encountered only once. This is discussed in 4.6.1.2, where it is shown that it is dictated by the need to support a particular claim put forward by the writer.

In addition to references to illustrations, the student reports also make use of references from one part of the text to another (21% of instances of endophoric markers in this corpus). In (143) below, for example, the writer uses endophoric markers to link the findings from investigations in the particular case with her general discussion of the pathology:

(143) **According to the information above** the patient (15) fall into this age of the disease. The site of the lesion is at proximal tibia near the apiphysis. For this patient, the haematogenous and lung metastasis are seen on the chest X-ray as well as on the C.T. scan. Radiographic appearances are **the same as these disussed above**. The doctor then decided on the treatment to use for this patient (*OST*).

This particular strategy for endophorics is more characteristic of soft disciplines and is extremely rare in the professional texts, where only a single instance occurs (see 4.6.1.2). Its presence in the student corpus, together with the general lack of references to images (although such references are characteristic of the professional reports, constituting as they do visual representations of the reality dealt with by the specialty of radiology) is clearly one of the ways in which the student reports reveal themselves to be less than expert.

Code glosses occur slightly more frequently in student reports than in the professional corpus (see Table 4.31). This is because of the proportionately larger number of instances in Move 1 (*Establishing territory*) and 10 (*Discussing problem*) as indicated in Table 4.26.

The proportion of examples to reformulations is almost identical to that found in the

professional corpus and this, as has been discussed in 4.6.1.2, is characteristic of scientific texts, as is the tendency for the code glosses to be signalled by parentheses. An examination of the type of reformulations preferred in each corpus, however, provides some insight into writer identity. While definitions are rare in the professional reports, they occur more frequently in the student assignments (almost 20% of the code glosses in the student corpus are some sort of definition) and suggest that the writers are making a display of new knowledge for the reader who will assess their writing. Another reason for a tendency to use definitions (i.e. instructional rather than explanatory reformulations) is clearly once again a matter of intertextuality and the influence of the language that characterises textbooks. Examples of code glosses in this corpus show the use of definitions that seem to be inappropriate for a knowledgeable, professional audience, as in the following:

(144) The patient went to theatre for oesophagoscopy **(viewing inside of oesophogus with oesophagoscope)** (*ACH*).

(145) Meningitis **is defined as** an infection of the meninges surrounding the spinal cord and the brain (*MEN*).

(146) Connective tissue **has been called** the “glue and scaffolding" of the body as it is used to provide shape and support to many parts of the body (*MSY*).

Related to the difference in audience that is signalled by the choice of code glosses in each corpus is the fact that the move where most instances occur in the professional corpus is Move 6 (*Reporting response to problem*), where very specific details of treatment may be provided as glosses, while the student writers choose proportionately more glosses in the form of general explanations and definitions as part of the introduction to the report in Move 1 (*Establishing territory*).

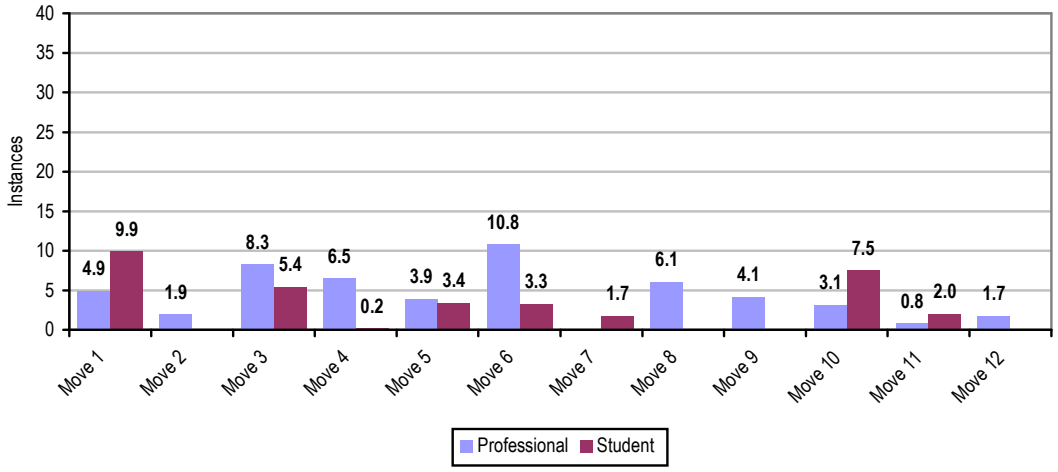


Figure 4.26 Frequency of code glosses per 1000 words in moves in professional and student case reports

4.6.2.3 Comparison of interactional metadiscourse features

Interactional functions are the most frequent metadiscourse devices in the student corpus, just as in the professional corpus, although, when the corpora are compared in terms of subcategories, the proportional occurrence of all the interactional devices, apart from engagement markers, is consistently less frequent in the former. This indicates that the student writers have not learned to relate to their readers and to engage with them in ways that are appropriate in the professional discourse community. This may be primarily because the students are not able to envisage readers as knowledgeable peers but rather as an academic audience who will be involved in assessing their work. In the discussion below, the uses of the various metadiscourse devices in the two corpora are compared.

Evidentials in the student corpus form the second largest group in the interactional subcategory in the revised metadiscourse model used in this study (see 3.1.4), just as in the professional corpus, although there are comparatively fewer evidentials in the former (see Table 4.31). This, together with the fact that the majority of the citations refer to textbook authors, indicates that the students are not involved in clinical knowledge creation by building up, as the expert writers do, evidence of diagnostic difficulties or of established clinical practice from sources published in a wide range of journals. Rather they draw on authoritative texts which represent accepted theories and facts (Myers 1992) and use these sources to provide explanations for aspects of the cases they describe or to summarise uncontested descriptions and explanations of pathologies.

Other differences between the corpora are the facts that each citation in the student corpus generally refers to a single source, while, in the professional corpus, many of the citations refer to multiple sources, and, less significantly, since this is simply a matter of style, that the student writers always use parentheses for their non-integral citations in contrast with the professional writers who routinely make use of superscript numbers.

There are proportionally more integral references, as in (147) and (148) below, in the student corpus than in the professional corpus, despite the fact that the students use fewer evidentials overall. This is explained by the fact that many evidentials in the former refer not to texts but to people with whom the writer related personally and this type of reference lends itself to being integrated grammatically within the clause.

The majority of the student writers cite medical staff or patients and their families as sources

of information, for example:

(147) **According to Dr. Salton**, Sarah's disease is at stage II A because the disease is confined to an area below the diaphragm and there are no systematic symptoms such as unexplained night sweats and wasting. The disease is currently being treated with radiotherapy and if necessary, **says Dr Salton**, also with the aid of chemotherapy (*HDI*).

(148) Mr. X had an abnormally high palate, had extremely long fingers and toes and was double jointed and extremely flexible. **Mr. X also mentioned** that he had cataracts removed from both eyes in 1996 which is also a feature of Marfan's syndrome (*MSY*).

(149) He was a smoker and used alcohol socially, unaware of the fact that he was a diabetic. (**Patient personal communication**, August 1 1999) (*ACR*).

These types of sources comprise over 22% of the evidentials in this corpus while in the professional corpus similar types of reference account for only about 3% (see 4.6.1.3). Where facts regarding the patients are attributed in the student reports to the patients themselves or their doctors, this has the function of indicating the students' personal involvement in their cases. The rubric provided for the students when the assignment was given specified as an outcome "signs of insight into an interaction with the patient" (Appendix 4). Clearly the student writers use evidentials to provide these signs and to make it clear that they have spoken personally to the doctor or the patient. This is not necessary in the real world of clinical medicine, the context for the professional reports. Here the relationship between patient and medical practitioner needs no comment and the texts produced in medical journals follow well accepted conventions for expressing or assuming these. Members of the medical team or their reports are specified in 16% of the evidentials across 13 reports in the student corpus in comparison with only one instance in a single professional report (less than 0.5%), as discussed in 4.6.1.3. The effect of this sort of reference is to distance the writer from the medical team and to draw attention to the fact that the persona being projected is not that of a team member (generally so carefully constructed in the professional reports) but of a neophyte or even an outsider.

Evidentials in the professional reports predominate in those sections where the literature is generally the source of information (namely the introduction and discussion sections), with a comparatively minimal number of evidentials in the case presentation section, where patients are the source of information. That the students tend to identify patients and medical staff as sources of information accounts for the fact that, in the case presentation section of their reports, there are almost as many evidentials as in the discussion section and more than double the number used by the expert writers in these moves. There is a significant lack of evidentials in the moves with rhetorical goals in the student corpus,

namely Moves 1 and 2. This is in contrast to the professional corpus, where the writers draw on the literature in these moves and also in Moves 8 and 9 to support claims for clinical significance and the existence of a gap in clinical knowledge. These differences are demonstrated in Figure 4.27 below:

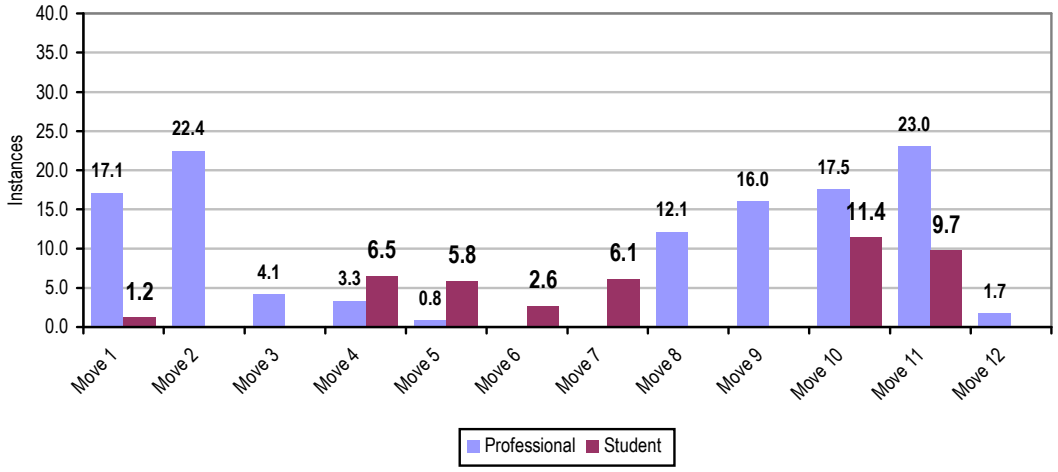


Figure 4.27 Frequency of evidentials per 1000 words in moves in professional and student case reports

As mentioned above, the majority of the citations in the student corpus refer to textbook authors, with only two referring to journal articles (one of these, in *RSA*, is an extremely vague reference, "according to journal" with no details at all provided). This reliance on textbooks clearly marks these writers as novices, in contrast to the professional writers, who are in a position to draw on a much greater range of relevant literature and are not confined to texts which present "disciplinary orthodoxy" (Hyland 2005). The professional reports present clinical knowledge as linked to the work of other researchers and practitioners. The internet sites cited in two of the student assignments and the "self-help" texts in one are all presumably targeted at a readership of patients (and perhaps their families) suffering from various conditions. This again suggests an identity that is at odds with that of the published writers, who are professionals.

Hedges rank as the most frequent interactional metadiscourse marker in both the professional and the student corpus, with an average of 17.1 instances in 1000 words in the former and 12.4 in the latter (see Table 4.31). The difference between the figures for the two corpora is primarily accounted for by the fact that the introductory moves (including Moves 8 and 9), which establish a territory and a niche, account for over 25% of the instances of hedging in the professional case reports. Because the student reports never contain instances of Moves 8 and 9, as stated in 4.4.2, this leads to a substantial reduction

in the amount of hedging that will occur. The difference in hedging in the conclusions of the two corpora is also important in this regard. Professional writers demonstrate more of a tendency to make claims and recommendations in the conclusion than student writers do and to indicate appropriate caution in making such statements, as is reflected in the comparative frequencies of hedging in Move 12 shown in the graph below:

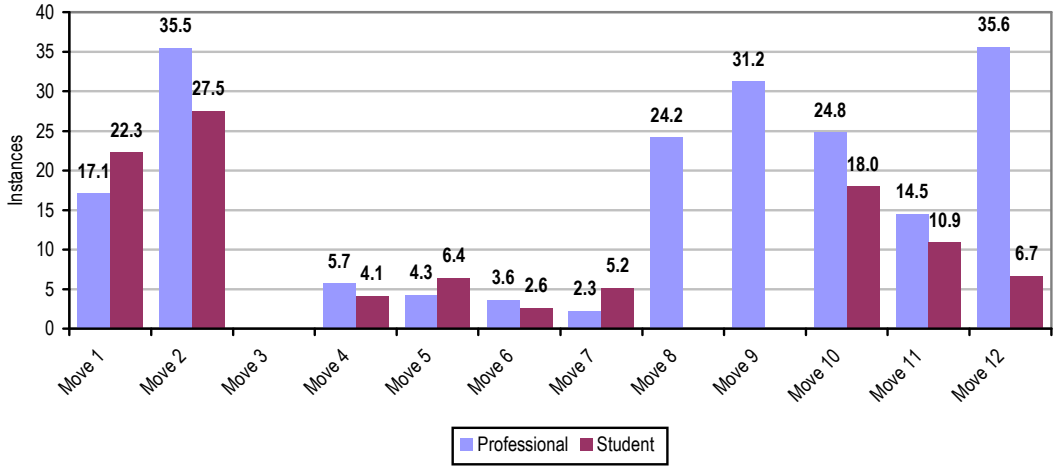


Figure 4.28 Frequency of hedges per 1000 words in moves in professional and student case reports

There are differences in the various lexical means of achieving the hedging effect in the two corpora that are worth attention. Thus epistemic *modal verbs* are less frequent in the student texts (0.6 instances per 1000 words) than in the professional reports (2.0 instances per 1000 words). The occurrence of the various modals used to express hedging appears in Table 4.32 below:

Table 4.32 Frequency per 10 000 words of modal verbs used to express hedging in professional and student case reports

Modal verb	Professional	Student
may	10.2	1.3
could	3.4	2.7
would	2.7	1.3
should	1.4	0.0
cannot	0.0	0.3
might	0.0	1.3

The occurrence of the possibility modal *may* in the professional corpus was discussed in 4.6.1.3, where it was shown that its frequent use characterises medical writing. While it occurs proportionally at just the same frequency in the professional reports and in student assignments, very few of the latter instances are epistemic (see Table 4.32 above). It has

been suggested that epistemic *might* is more characteristic of spoken than written discourse (Coates 1983; Vihla 1999). Interestingly, while this form does not occur in the professional reports, it does appear once in the student assignments. However, the number of all the epistemic modals involved in the student reports is very small and no firm patterns can be established.

Lexical verbs as hedges are less frequent in the student assignments (1.2 instances per 1000 words) than in the professional reports (3.1 instances). A count of categories of reporting verbs, as shown in Table 4.33 below, shows that the student writers seldom hedge claims or indicate a stance towards cited propositions.

Table 4.33 Frequency per 10 000 words of categories of verbs used to indicate epistemic judgements in professional and student case reports

Verbs	Professional	Student
Judgemental	15.6	5.7
Evidential	10.2	1.3

Hedging is more generally expressed through adverbs, adjective and nouns in the student corpus (84% of the instances). It was noted in the discussion of hedging in the professional radiology reports in 4.6.1.3 that it is the expression of usuality rather than probability that characterises the hedging in these texts. This frequency of occurrence is even more pronounced in the student reports where the adverbials *usually, sometimes, occasionally, rarely,* etc account for 40% of the hedges that occur in the corpus. This appears to be typical of clinically oriented texts, such as textbooks, which again are seen to be an important influence on the metadiscourse patterns observed in the student reports.

All the forms discussed above are content-oriented hedges. There are no examples in the corpus of the more interactional reader-oriented hedges. Accuracy-oriented hedges predominate, with writer-oriented hedges accounting for only just over 10% of the instances of hedging, corroborating the finding that the student writers tend not to be concerned with mitigating knowledge claims in their assignments. This is in contrast with the professional corpus where writer-oriented hedges account for nearly 30% of instances.

Boosters are infrequent in both the professional corpus (1.4 instances per 1000 words) and in the student corpus (0.8 instances), as has been demonstrated in Table 4.31. Figure 4.29 below shows that there are instances of boosters occurring (albeit infrequently) in student reports in the case presentation (which is never the case with the professional reports), as

well as in introductory and discussion moves, for example:

(150) These tumours and disease find the way of accumulating and they are **really** dangerous and result in death if review and check up dates are ignored (*OSA* – Move 1).
(151) I always encourage him never to loose hope because one day he **will be just** fine (*OSA* – Move 4).

(152) Elevated heart rate and blood pressure are **just** not good for Marfan syndrome sufferers (*MSY* – Move 11).

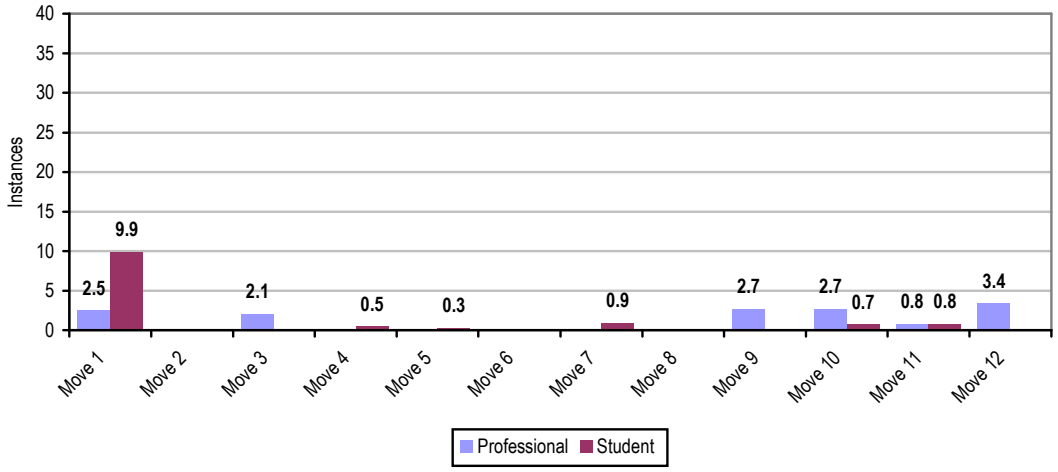


Figure 4.29 Frequency of boosters per 1000 words in moves in professional and student case reports

The difference in the raw scores between the two corpora is very small but, as was noted with regard to hedges, the differences in frequency may partly be accounted for by the fact that the student writers omit some of the introductory moves in their reports and fewer of them make use of a conclusion (i.e. Move 12). Even so, fully 25% of the boosters in the student corpus are accounted for by one report (i.e. *ACH*) and that in Move 1 alone. This report is unusual since it follows an essay type structure rather than that of the normal introduction of the case report genre (see 4.4.2.3). In the introduction, reproduced in (153) below with boosters shown in bold, the student writer frames her case report as an example of a patient who seeks medical help too late and she uses boosters and other interactional markers in the introduction to present a confident persona, drawing her readers in in solidarity with her position and making clear that she assumes they will hold the same attitude towards Western medicine and superstition.

(153) It is surprising that most black people are unable to distance themselves from believing that there is witchcraft and they **always** think that they are bewitched whenever something wrong happens to them. What is worse **there are even those who will** think that they are bewitched when they are not employed thinking that there are people who do not want them to be progressive in their lives. The people who are obsessed with this belief ignore illnesses because they think they will be cured by herbs. They **will only** think about doctors when

> sickness deteriorates. Patients who are experiencing **all the familiar** symptoms of tuberculosis **will only** visit the hospital when they are practically dying as they believe that they are not ill but `bewitched' (*ACH*).

The fact that the professional writers do not make use of boosters in the case presentation section of the report is one of the ways in which they ensure the presentation of the persona of the objective observer. Two of the student writers, by contrast, choose to use boosters in this section (in conjunction with the other interactional devices of self mention and attitude markers) and so suggest a rather different attitude of personal involvement towards the case. This is exemplified in (151) above.

On the other hand, in the discussion moves, the student corpus shows fewer boosters than in the professional reports. Where they do occur, it is in statements that the writers seem to have taken directly from their sources, for example:

(154) "The abdominal radiograph **will** detect 90% of all stones" (Moore & Ramrakha, 1997, p.286) (*ARF*).

(155) Statistics **show** that the mortality is less than five percent and morbidity less than ten percent (*AMA*).

It is clear that the students do not present an authoritative persona in the discussion sections of their reports, while sometimes being able to use boosters to present a more confident approach in other sections of the report where they are reporting their first hand experience or opinions.

Attitude markers in the student corpus, with 2.6 instances per 1000 words, are slightly less frequent than in the professional articles, 3.8 instances (see Table 4.31). While the writers of the latter generally indicate in their evaluation of the case a professional attitude by commenting on what they find interesting or important (see 4.6.1.4), the student writers tend to adopt (and imply the audience shares) a lay observer's response to the vicissitudes of life as they affect the patient and indeed even themselves, as exemplified in the following:

(156) The case study is going to cover the signs, causes, investigations, treatment and prognosis of this **frightening** disease (*BME*).

(157) The patient's condition deteriorated and he was pale. Skin was cold and clammy. Relatives were contacted but there was no reply. **Fortunately** the wife arrived to visit him. His pupils were dilated. Oxygen was still in progress. **Unfortunately** the patient stopped breathing, no pulse and pupils were dilated. Mr S passed away (*ACH*).

(158) **Unfortunately** the radiographs are not included as they have been misplaced in the hospital (*ACR*).

The attitude of the writer of the case study on achalasia (*ACA*) has been discussed in 4.4.2.3, where it was suggested that she appeared to be adopting the *ethos* of a proponent of Western medicine. This is achieved by the combination of the use of attitude markers (indicated in bold), together with hedges, boosters and engagement markers (underlined) as shown in (159) below:

(159) **It is surprising** that most black people are **unable to distance themselves** from believing that there is witchcraft and they always think that they are bewitched whenever something wrong happens to them. **What is worse** there are even those who will think that they are bewitched when they are not employed thinking that there are people who do not want them to be progressive in their lives. The people who are **obsessed** with this belief **ignore** illnesses because they think they will be cured by herbs. They will only think about doctors when sickness deteriorates. Patients who are experiencing all the **familiar** symptoms of tuberculosis will only visit the hospital when they are practically dying as they believe that they are not ill but `**bewitched'**. When will people **get it into their minds** that pain itself means that there is an abnormality taking place inside the individuals body (*ACH*).

However, this *ethos* is certainly not that of the knowledgeable radiologist focusing on institutional evaluation but rather conveys the expression of feelings and judgement of attitudes (cf Martin and Rose 2003).

A comparison of the instances of attitude markers in the two corpora across the moves of the case report, as in Figure 4.30 below, indicates that students particularly make use of the device in Moves 1 (*Establishing territory*) and 2 (*Establishing niche*). They tend to introduce the pathology or the patient in these moves by displaying their feelings regarding them.

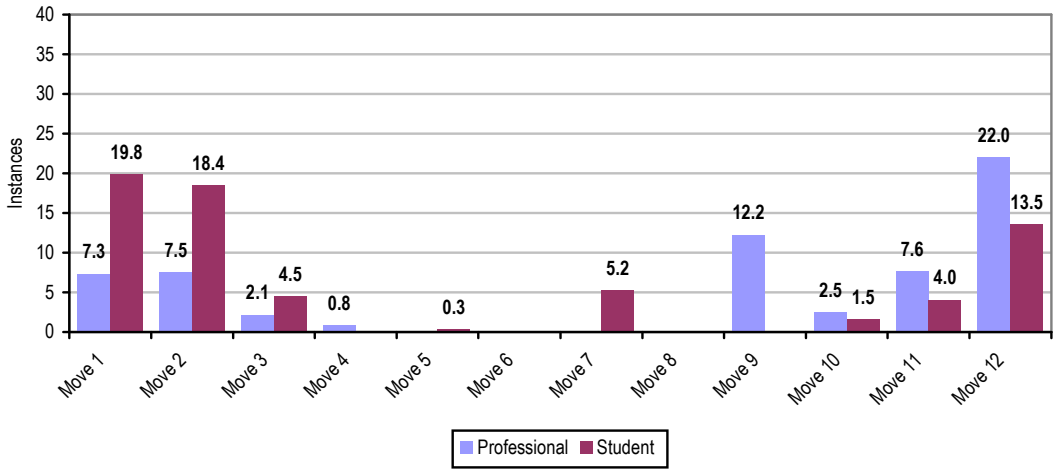


Figure 4.30 Frequency of attitude markers per 1000 words in moves in professional and student case reports

Although the student writers use proportionally fewer attitude markers in Move 12 than the professional writers do, both show a marked increase in the conclusion compared with the

other moves in the discussion section.

Self mention is another category in which the frequency of instances in both professional and student corpora is very low, with 1.9 and 1.3 per 1000 words respectively (see Table 4.31). There are, however, significant differences in the way in which this metadiscourse category is used to construct relationships in each corpus. It was noted in 4.6.1.3 that the radiologists use first person pronouns only in the plural form and only as a subject or possessive. By contrast, where the student texts use first person pronouns, they are usually singular and the object form appears frequently, for example:

(160) **I** was surprised when he told **me** that his problem started during his childhood and nothing was done to find out what was the cause (*ACH*).

This confirms that the persona of the professional radiologist as part of a medical team and speaking confidently to present phenomena in order to extend general clinical knowledge is very different from that of the student radiographer, who is usually more concerned to use self mention to reflect personal interaction with medical staff and patients. This is also indicated by the fact that a number of the instances of self mention in the student assignments are to be found in the case presentation section and this is in direct contrast to the professional reports where the facts of the case are presented impersonally as a way of reflecting scientific objectivity (see Figure 4.31 below).

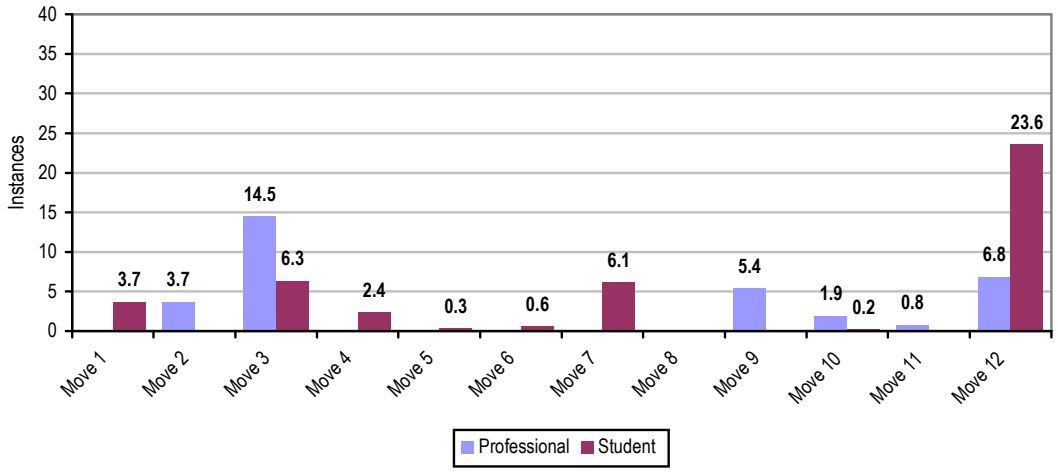


Figure 4.31 Frequency of self mention per 1000 words in moves in professional and student case reports

The frequency of instances in Move 12 of the student reports is because of a single case report (*ACH*), which has already been discussed in relation to its unusual use of boosters in

the introduction.

Engagement markers represent the only interactional metadiscourse subcategory where the student corpus, with 2.2 instances per 1000 words, shows a slightly higher frequency than the professional corpus, with 1.4 instances (see Table 4.31). The frequency of occurrence of these devices over the move of the two corpora is indicated in Figure 4.32 below:

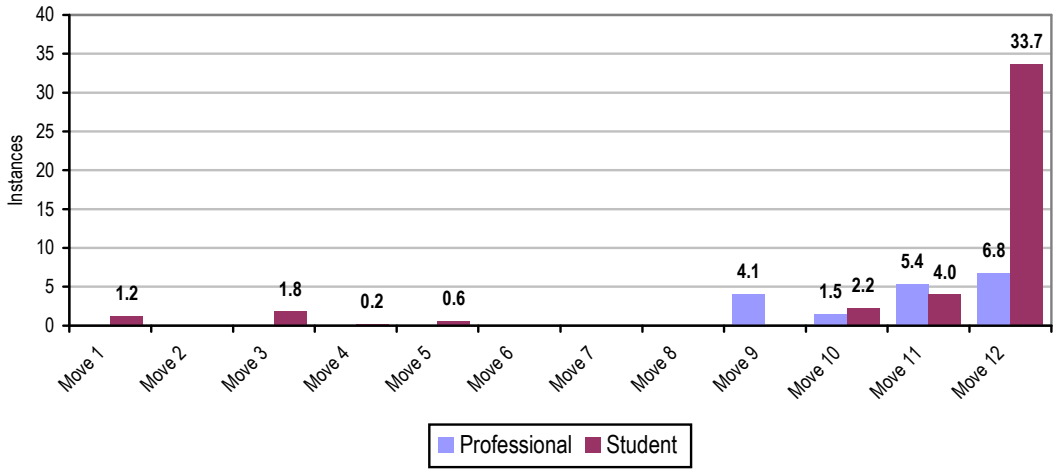


Figure 4.32 Frequency of engagement markers per 1000 words in moves in professional and student case reports

The graph above demonstrates that there is some use of engagement markers by the student writers in all sections of the report, in contrast with the professional reports in which they are confined to the discussion section. The significant increase in these devices in Move 12 is accounted for by two particular reports (*MED* and *OSA*), where multiple directives are used to express recommendations on the management of the patient.

The difference in the devices chosen by the writers to realise engagement in the two corpora is of particular interest. It was noted in 4.6.1.3 that the most common means used by the radiologists to position the reader are directives expressed by means of modal verbs of obligation (in particular *should*) addressed to the reader. There is a wider range of engagement markers in the student corpus, due mainly to the variety of sources used by the student writers, who tend to follow the original very closely without imposing their own purposes on the text. Thus, in *ARF*, the writer, in her discussion of the aetiology of the condition, inappropriately uses imperatives and a series of questions taken directly from a handbook of medicine, as in (161) and (162) below. As a practical aid to diagnosis and

practice this sort of text belongs to a set of genres that are more directive than the case report and characteristically display the authority of the expert (Hyland 2002b, 2002g), for example:

(161) … 10.**Try** to obtain the following history: fluid intake, occupation, periods of residence in hot climates, symptoms of hypercalcaemia or family history of stones disease; 11. On examination **note** the following: abdominal tenderness (especially loins and sub costal); palpable kidneys" (Moore & Ramrakha, 1997, p.286) (*ARF*).

(162) The next step is to look at the Aetiology for the ARF, to assess the severity. Because there are so many causes only the ones applicable to this case and Diagnostic Radiography are mentioned.
1. **What is the cause of the hypovolaemia** (D & V, bleeding, fever)
2. **What is the cause of the hypotention** (hypovolaemia, drugs, shock)
3. **Is there any** history of sepsis (fever, hypothermia; T B)
4. **What drug is involved** (antibiotics, ibuprofen)
5. **Is there history of hypertension, diabetes, prostatism or haematuria?**... (Moore & Ramrakha, 1997, p.276) (*ARF*).

Citing an internet report, another student lists behaviours not recommended for sufferers from Marfan's syndrome, using engagement markers which indicate that the original text has as its intended audience the patient rather than the medical practitioner:

(163) **WHAT NOT TO DO!** There are a number of things that aren't a good idea for people with Marfan's syndrome.
1. Sports. Any intense and demanding activity that involves the risk that **you** could fall, hit something or someone, or sustain a blow to **your** head must be ceased immeadiately… (*MSY*).

While the deontic necessity modals are, as in the professional reports, the most frequent engagement markers, there are proportionately more occurrences of *must* in the student assignments (31% of the modals in this corpus in comparison with 5% in the other corpus), for example:

(164) The PA view **must** be sufficiently penetrated to see the shadows within the heart, e.g. the double contour of the left atrium and valve calcification. When looking at plain films in patients with possible cardiac disorders, the heart and great vessels **should** be assessed for size and shape…. Normally there are no visible calcifications within the heart and, therefore, any cardiac or pericardial calcifications **should** be noted and their positions established. The aortic arch **should** also be examined to exclude signs of coarctation and to ensure that it is normally located to the left of the trachea (*MSY*).

The frequency of the more authoritative necessity modal may also be partly accounted for by the influence of manuals, although it is not possible to be certain of this since referencing is not reliable in many of the assignments. One of the students concludes her report with recommendations that appear to be her own. Tellingly they refer to what the behaviour of the patient or the family should be rather than reflecting the professional preoccupations of

the medical practitioners, such as radiological findings, diagnoses and radiological treatments that characterise the conclusions in the professional reports. These recommendations all involve the use of *must* or an imperative form and suggest that the writer sees herself as more knowledgeable than the patient. The writer appears to be addressing the readers directly in the last sentence in (165) as if they were involved in the care of the patient.

(165) The patient **must** not default and **must** be given support at home and encouragement. The patient **must** also be accompanied when going for check up or treatment especially if he/she is an elder person, young ± 8 up to 15 yrs of age or a mentally retarded person. If the patient is admitted, he/she **must** be given words of comfort, wisdom and encouragement. **Give** him/her margazines (books) to read at least something to do, to keep him busy, so that he/she cannot feel the pain every time (*OSA*).

Hyland (2002b) has shown how the choice of directives is not simply a function of the social distance or power differences between writer and reader. The purpose of the directive is also a factor. Thus the instructions in (165), because they refer to physical acts, do not impose on the reader as much as cognitive acts, such as is found in the professional corpus would. There are no instances of cognitive acts in the student corpus. Textual acts impose on the reader the least. There are a few textual acts found in two particular reports (*MAY* and *RSA*) where the directive is generally an internal reference to another sections of the text, for example:

(166) The radiograph shows no metastasis the chest and nothing on the lower limbs. **Refer Addendum B** (*RSA*).

From this analysis of the type of directive found in the corpus it can be concluded that, although there may be proportionally a very similar frequency of engagement markers in the two corpora, the student writers' choice of directives in general indicates a persona less authoritative than that of the professional radiologists.

4.6.3 Conclusion

Metadiscourse focuses on the explicit ways in which the writer interacts with the reader in text. This interaction can be analysed in terms of textual (interactive) and interpersonal (interactional) features used concurrently in discourse and represents a different but complementary focus on purpose and identity from that associated with genre choice. Although there are some differences in frequencies between various metadiscourse devices across the two radiology corpora, more often differences are found in the way that particular metadiscourse subcategories are realised.

The identity of the radiologist author presented by means of metadiscourse in the professional case reports is that of an authoritative practitioner addressing a knowledgeable reader and objectively sharing clinical experience that, because it is new, needs to be shared in a professional and collegial way in order to extend the reader's experience beyond cases in his or her practice and thus expand the clinical knowledge of the specialty. The impersonal, objective style used indicates that the reader is seen as a fellow practitioner sharing an understanding of the need for professional norms and requirements around clinical practice. The rationale put forward by the writer for the importance of the contribution of any particular case report is generally rarity of occurrence of the reported pathology, in other words the fact that there is a gap in clinical knowledge, and, less frequently, that there are problems with previous diagnostic practice. The first type of rationale suggests an authoritative writer and a knowledgeable specialist, and even when hedging and other interactional metadiscoursal features are used with regard to suggested new interpretations, this implies an assumption that values are shared with the reader. The hierarchical distinctions in the real world of medicine are obscured and the writer speaks for the medical team with a single voice. The focus is on clinical knowledge based on practice and experience so that the data tends to be provided by reports of occurrence of pathologies and other clinical observations, with the writer suggesting solidarity with the reader and that both share the values of reliable observation of real world phenomena and professional patient care. The identity suggested is that of the authoritative practitioner who is able to arrive successfully at a diagnosis and to use technology innovatively and well.

By contrast the student writers present themselves as reporters of information generally accessed from other sources, including medical personnel and patients, rather than by means of their own professional observation and expertise. The persona of the writer sometimes comes across as one more associated with the soft disciplines than with science and medicine and frequently metadiscourse devices are those of the textbooks and case notes drawn on by the student writer. Visual material vital to diagnostic practice in this branch of medicine is poorly represented and not well integrated. The persona of the writer is thus not authoritative but rather relates to the reader as lecturer and as the person who will assess the report as a course work assignment. This accounts for the display of knowledge from sources and the emphasis on interactions with the patient by the writer, not as medical professional but as fellow sufferer and friend. The persona maintained in this corpus is generally that of a caring human being who understands the benefits of Western medicine.

4.7 SUMMARY AND CONCLUSION

In this chapter, I have used two different approaches to purpose as revealed in radiology case reports to explore writer identity in a professional and a student corpus.

The first approach was in terms of genre structure and a description of the moves in the professional case report was undertaken so that it could provide a benchmark for the examination of the student texts. This study shows that the model of the three-move introduction prototypical in research articles is also applicable to the case report and that the writers of the professional reports are careful to establish a research space across both the introduction and the discussion sections of their articles. Most of the rhetorical moves found in the professional papers are present in the student assignments but some important differences were found in the latter. These include the absence of the introductory moves in the discussion section (Moves 8 and 9), which have the important role of assisting in the establishment of the rationale for the case report. Another significant difference is the lack of focus on diagnosis and sometimes even on radiology, indicated by a tendency for Move 5 (which deals with the investigations of the medical team leading to a diagnosis) to be markedly shorter than Move 6 (which describes the management of the case). The use of school essay literacy practices in introductions and conclusions was also noted in the student corpus, as were difficulties in coping with intertextuality and with the conventions of the case presentation, which are central to the way in which clinical knowledge operates in medicine. The case presentation in the professional corpus is characterised by particular patterns, not only in terms of move structure but also of transitivity and theme, presenting the writer/researcher as an objective observer and as a participant who acts on the pathology and technology rather than on the patient as such. There is no such use of consistent lexicogrammatical patterns shown in the student corpus and agency is differently configured to present a more commonsense view both of the patient as agent and of the medical team and the pathology acting directly on the patient. The student corpus also shows the presence of an additional move (Move 4a, *Presenting background)*, which has the purpose of providing a social history of the patient. The student writer thus emerges as a novice in the discipline, one who is not seeking to use the genre to contribute to clinical knowledge but rather to demonstrate relevant information acquired from textbooks and other sources and also, as revealed in the student interviews, to demonstrate to her lecturer evidence of personal contact with the patient.

The second approach to purpose in the texts examined involved an analysis of

metadiscourse choices made by the writers to indicate their relationship with readers and subject matter. The students display a very different relationship with their readers from that of the professional authors. The latter indicate an expected reader who is knowledgeable and shares professional and disciplinary values. The professional case presentation section is characterised by the use of endophorics, guiding the reader to refer to radiographic images (interpretation of which is a fundamental purpose of the specialty) and there are very few interactional devices in this section. The student reports, on the contrary, show a different configuration of metadiscourse devices, with very few endophorics and the presence of interactional devices across a wider range of moves. The interactional devices important in the professional corpus occur especially in the moves which show more intense rhetorical work, the introductory moves (Moves 1, 2, 8 and 9) where the rationale for the report is presented, and the conclusion. The students, not surprisingly, do not indicate a sense of belonging to a professional medical team which is able to deal objectively and professionally with the diagnosis and management of each case and to participate in the creation of clinical knowledge by reporting on their clinical experience. They demonstrate rather a sense of participating in a student-lecturer relationship with the reader, presenting information on the relevant pathology based on textbooks and on the chosen patient and drawn from written medical reports or from conversations with the attending doctor or the patient. Efforts to follow assignment instructions leads to the student writers' putting emphasis on a relationship with the patient, which does not resemble the objective approach to professional patient care suggested by the professional writers but rather the caring and sympathetic one of a fellow human being. Difficulty in coping with conventions for intertextuality in academic writing means that the students also frequently adopt the voices of the textbook or the patient manual.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

5.0 INTRODUCTION

The research reported on in this thesis was concerned with the identity of novice writers in the field of radiology. The underlying aim of the study was to explore writer identity in the writing of students as demonstrated in their discourse choices within the context of the discourse community, by means of an analysis of purpose at two levels in the corpus of student texts and a comparison of these findings with those from an analysis of a corpus of professional reports published in specialist journals. At the same time the thesis sought to make a contribution to the field of writing research at both a theoretical and descriptive level, while also having relevance at an applied level.

The study was contextualised in Chapter 1, where the aims, theoretical background and research design were outlined. In Chapter 2, the research literature relevant to an investigation of identity and purpose in text was surveyed and it was established that the notions of genre and metadiscourse are able to provide complementary ways of operationalising writer identity within a discourse community. Because the texts examined in the study were drawn from the field of medicine, the literature concerned with the discourse of medicine was reviewed. This not only provides important sources for an understanding of the social context of medical writing but also demonstrates that the genre of the case report has not previously been described.

In order to bring together into a single framework the theoretical approaches and analyses that were shown in Chapter 2 to be fundamental to accounting for identity in the two corpora of texts, in Chapter 3 a model linking levels of context with text and with the writer and reader was proposed. The model related genre, as the analytical construct at the macro-level concerned with purpose, with the other levels of context and allowed for the analysis to refer to register and ideology where this was useful in ascertaining genre boundaries and in comparing texts across the two corpora. Metadiscourse, which has the role of expressing purpose at a micro-level, was also included in the model. Bringing these separate approaches together in a single framework provided new insight into the resources available

to the writer to construe identity dynamically in the unfolding text. This theoretical framework formed the basis for the comparative findings presented in Chapter 4.

These findings are discussed below with reference to the aims of the study (5.1). This is followed by an assessment of the contribution of the study (5.2), a discussion of limitations of the study together with directions for future research (5.3) and an account of certain pedagogical implications (5.4).

5.1 DISCUSSION OF FINDINGS

The research problem addressed in the thesis concerned how to describe the identity of novice writers in the field of radiology. The study grew out of an interest in the way students struggle to cope with the shift from school literacy practices to those of the expert professional. Because identity is located in the social roles writers take on in their discourse communities (Hyland 2002f), it encapsulates notions of purpose and can be operationalised in terms of genre (including text types) and metadiscourse. The problem was accordingly interpreted in 1.2 in terms of a series of questions and sub-questions. The first question asked to what extent the students writing in the workplace position themselves as professionals in relation to the choices they make with regard to genre, text types and metadiscourse and why they make these choices. In order to answer this question it was necessary to deal with the second question, which concerns the writer identity displayed in texts by professional writers in the same field and in terms of the same constructs so as to provide a benchmark for comparison.

A genre analysis of the professional case reports was undertaken, on the basis of which a prototypical pattern of moves and steps was proposed. Although there has been a range of work done by scholars on the research article in a number of different disciplines, including medicine, as indicated in Chapter 2, no attempt has previously been made to describe the medical case report in terms of move structure. It was found that the introduction in the case report could be seen as being closely related in structure to the three-move research article introduction described by Swales (1990) in his seminal work. It is clear that the writers of the case report are also required to create a niche for their contribution to clinical knowledge and that they create this research space in not only the introduction and/or the abstract but also in the two moves which introduce the discussion section and which function to re-establish the territory and niche. The relationship between these four moves is carefully constructed in terms of semantic repetition and contrast.

While the student reports showed the same general structure, the tendency was to use many more headings, as is common in medical textbooks, on which the student writers showed themselves to be very dependent. Moves providing a rationale for the report were low in frequency (Move 2) or completely absent (Move 8 and 9) in the student corpus. Managing the tension between the move structure of the genre and the narrative retelling of the patient's disease seemed to be difficult for the student writers, who often relied heavily in the case presentation proper on the case notes available in the ward. There was a tendency to make use of school essay discourse in their papers, in introductions and conclusions, indicating that they were not yet able to realise the new professional identity necessary in their field and that their knowledge was that of lay people rather than experts. Interviews with the students provided a context in which to interpret their discourse and it was made clear in these that their lecturer's expectations established a different context for their reports than that affecting the professional authors. Thus, students were at pains in their reports to represent their involvement with the patient as demonstrated in the detailed social histories given.

Text types as well as lexicogrammatical patterns were found to assist with the decisions regarding move boundaries in setting up the genre structure of the professional case report. Thus the Problem-Solution text type characterised the case presentation sections of the report, with multilayering possibilities that are specific to the genre, and the Preview-Detail pattern characterised Moves 10 (*Discussing problem*) and 11 (*Discussing response to problem*), with the Details generally held together by means of lexical strings and reference chains. Although the patient was often Actor in clauses in the case presentation section, the participant roles ascribed to patients were generally low in dynamism and this was accompanied by a tendency for the Problem-Solution pattern to take into account the viewpoint of the medical team only. The Problem-Solution text type was obviously familiar to the students also but, even so, their use of this pattern differed from the professional writers in so far as participants were more often patients or family members. The tendency for Plans rather than Responses to appear in the student case presentations was because the students were usually writing about patients who were currently under treatment and whose cases were not resolved. The conclusion of the report (Move 12) allowed the professional writer to present recommendations and display professional judgement regarding diagnosis of the pathology and its management but students did not generally conclude with Move 12, tending rather to provide a prognosis of the specific case (Move 7) at the end of their reports.

The metadiscourse analysis of the professional corpus benefited from a preliminary comparison with Hyland's (1999c, 2005) observations of patterns found in research articles and, while the latter showed more interactive features, interactional features (in particular evidentials and hedges) predominated in the case reports (77.5%). The metadiscourse analysis was able to reveal how the writer expressed a persona in the text. Even when differences in frequency were not significant, the means by which the same metadiscourse category was expressed was often different in the case report and the research article. Thus, for example, it was found that modal verb *must* used as an engagement marker, which does not occur at all in the professional reports, is frequent in the student corpus and self mention occurs in the form of plural first person pronouns in the former while they are more usually singular in the latter.

Interactive features organise the discourse for the reader. In the professional case reports, because conjunctions were found to be rare and tended to link propositions reporting events external to the discourse, transition markers were infrequent. The length of the reports clearly did not necessitate the use of frame markers. Endophoric markers, while not very frequent overall, characterised the case presentation moves since the reference to illustrations of x-rays and scans was important in each report to provide evidence for diagnostic decisions and to display professional expertise. Code glosses used indicated that, while the writers were extending the clinical knowledge of their readers, the latter shared specialist knowledge of the field.

Interactional features invite a response by the reader to the unfolding text. In the professional case reports, a large number of evidentials were found as compared with the research articles described by Hyland (2005). This may occur because of the nature of clinical knowledge, developed as it is through the presentation of new clinical experience that is explicitly related to previous published findings. The use of evidentials in the corpus also allowed the writers to present themselves as authorities in the field. Patients were rarely indicated as a source of information and the single narrative voice made no distinction between the roles of observer, interpreter and author. While boosters were rare, hedges were frequent in the corpus and were predominantly content-oriented, conveying propositions accurately or limiting personal commitment by the writer. Attitude markers appeared twice as frequently in the radiology case reports as in research articles, according to the figures reported by Hyland (2005), and they had, in the former, the important role of projecting the identity of a knowledgeable medical specialist. Self mention was not frequent but did characterise some parts of the discussion section of the report, while the case

presentation, by contrast, was narrated in a more detached and objective way. Engagement markers, explicitly addressing readers, were occasionally used in the form of directives concerned with clinical practice. This allowed the writers to maintain an objective style while indicating a shared understanding of professional norms and requirements.

The frequency of occurrence of metadiscourse devices was almost always reduced in the student corpus, indicating that these writers were not able to engage with readers in the same way as the professional writers do. The categories where the differences were most marked are shown in Table 5.1 below:

Table 5.1 Metadiscourse categories showing a decrease in frequency in the student as compared with the professional corpus

Metadiscourse categories	Student	Professional
Endophoric markers	0.5	4.1
Evidentials	8.7	11.4
Hedges	12.4	17.1

Endophoric markers were, on the whole, conspicuously absent in the student papers since the writers did not generally include illustrations of the cases under consideration in their texts. Evidentials occurred less frequently than in the professional corpus, primarily because the students did not draw on the literature to support claims for clinical significance or the existence of a gap in clinical knowledge, which was an important feature of the professional case reports. Hedges, while the most frequent metadiscourse marker in both corpora, were nevertheless found to be less frequent in the students' reports, because moves which showed a high occurrence of hedges in the professional report either did not appear at all in the student corpus (Moves 8 and 9) or appeared infrequently (Move 12). Where the students used more metadiscourse markers than the professional writers, as indicated in Table 5.2 below, the differences may be too small to be significant.

Table 5.2 Metadiscourse categories showing an increase in frequency in the student as compared with the professional corpus

Metadiscourse categories	Student	Professional
Code glosses	4.8	3.8
Engagement markers	2.2	1.4
Frame markers	1.3	0.6

Rather than frequency, it was often the way in which the devices were realised in the different corpora that was insightful in terms of writer identity. Thus, student writers used

frame markers to provide lists and taxonomies, as in textbook writing. They also made more use of definitions as a means of glossing terms, suggesting that they were making a display of new knowledge for their reader. They used engagement markers (e.g. imperatives and questions) in ways more suitable for medical handbooks and patient self-help genres.

The strategies chosen were important in many other of the metadiscourse categories as well. With regard to evidentials, student writers cited textbooks rather than journal articles and, in addition, indicated personal involvement in the case by explicitly indicating patients and medical staff as sources of information. Thus, while the professional writers tended to confine the use of evidentials to the moves that build up a rationale for the report, drawing on the literature to support claims for clinical significance and the existence of a gap in clinical knowledge, the student writers frequently used them in the case presentation section. In addition, the expression of usuality was markedly greater in the hedging found in the student corpus than in the professional corpus, which once again points to the influence of textbook discourse on the assignments produced by the former. Student use of attitude markers suggests a lay observer's response to illness, in terms of a more affective type of evaluation, rather than the professional attitude found in the other corpus, where judgements were made regarding interest and importance in features of the cases. The type of self mention found in the two corpora also differed, with the professional writers using the plural first person form only, while the student writers generally used singular forms. The effect of this was to confirm the professional persona of the former to be that of a member of a medical team, confidently presenting phenomena so as to extend clinical knowledge, while the persona of the latter was that of a lay person concerned with reflecting personal interactions with medical staff and patients.

The differences in discourse patterns across the two corpora suggest that the student papers cannot be considered to be exemplars of the same genre as the professional papers. There are structural differences between the texts and, more importantly, they differ to a large degree in terms of purpose and context. While the student writers responded to the exigency provided by the need to write a case report, they tended to write as students, sensitive to the requirements of the marker, making no real attempt to model their papers on published texts within an appropriate genre.

5.2 CONTRIBUTION OF THE STUDY

The study, in the process of answering the research questions as discussed above, seeks to

make a contribution in the theoretical, descriptive and applied domains (see 1.3). I will deal with each of these aspects in turn.

With regard to the theoretical domain, the review of the research literature reported in Chapter 2 establishes that, because the discourse community gives rise to the particular genres that articulate the purposes of the community (e.g. Bloor 1998, Swales 1998), the notion of genre is important in exploring the identity of writers within a particular community or field (Hyland 2002f, Rafoth 1990). At a different level, it has also been demonstrated (Hyland 1997, 2005) that writers project themselves in text by means of the use of metadiscourse, as they both reflect and realise the social context they share with the reader while pursuing their professional goals. It is by means of the integration of these two different theoretical approaches within a single framework, by viewing them as two separate levels of purpose related within a model of text and context, that the current study seeks to make a contribution to the field of writing research at the theoretical level by providing new insights into the ways in which writers represent themselves in terms of identity and achieve their social purposes. Identity is operationalised in terms of these levels of purpose by means of the construct of genre at the macro-level and metadiscourse at the micro-level in texts and the resources available to writers to construe identity dynamically in their unfolding texts are described.

With regard to the descriptive level, the review of the research literature undertaken reveals many detailed studies of writing in particular contexts and of the acquisition of disciplinary discourses by novice writers. My study differs in several important ways from previous work. Firstly, an important aim of the thesis has been to provide a comprehensive move analysis of the genre of the case report in medicine, a genre which it appears from this survey of the research literature has not been previously described in this way. Previous studies of move structure in medical writing are mostly directed towards the description of the research article (Nwogu 1997; Skelton 1994) since it is the genre largely responsible for knowledge creation and dissemination in a discipline. In this study I have focused rather on the medical case report, arguing that this genre, which has not previously been described in terms of move structure or metadiscourse, is also important since it is linked with the creation of clinical knowledge. A comprehensive metadiscourse analysis has also been undertaken of the case report for the first time, using Hyland's (2005) model and extending it to a more fine-grained description of the use of metadiscourse resources as it is used in the different sections and moves of the genre under investigation, thereby linking the two different analytical approaches to provide insight into the signaling of identity at both a macro and

micro level.

In addition, while there have been studies on writer identity, such as those done by Fairclough (1992b) and Ivanič (1998), and the discourse of medicine has been a fertile ground for this type of research, this study adopts a different approach from the critical discourse paradigm and the focus on hegemony that generally informs the earlier work. Here the aim has been to focus rather on writer purpose in relation to the discourse community, with a possible application of the findings being to allow students to achieve inclusion within their new community.

This approach is related to the third level of contribution made by the study, namely that of application. While this is not a direct focus of the study, the potential application of the findings to health science education is also an important contribution. This will be discussed in 5.4.

5.3 LIMITATIONS OF THE STUDY AND SUGGESTIONS FOR FURTHER RESEARCH

The study has limitations and gaps in several respects. These are discussed below and form the basis of suggestions for further research.

The approach to discourse organisation that has been undertaken here has described typical discourse patterns of move structure and metadiscourse and compared their distributions across two corpora. Biber *et al* (2007) explain that top-down approaches such as adopted in this study have not often been applied to an entire corpus of texts because this is very labour intensive. They suggest that it is the use of corpus linguistic methodologies now available that is able to provide an integrated top-down/bottom-up approach. While I did not use this sort of computer-based methodology in the current study, as discussed in 3.3, the corpora in the study, arguably adequate for obtaining insight into the discourse practices of the writers, could have been considerably larger if corpus-based linguistic techniques had been used as suggested by Biber et al (2007). This would probably have allowed for a more rigorous description of the typical lexicogrammatical patterns found in each move. A corpus linguistic analysis was not attempted since it seemed appropriate first to conduct a more limited but in-depth and comprehensive study by means of a manual analysis so that the patterns of interest could be established before attempting a computerised collection of data over a wider corpus.

Another limitation of the study is the fact that using Nwogu's (1997) approach to setting up moves has meant that the bundle of linguistic features marking each move is described discursively and not necessarily made specific enough to allow for comparison with other genres. I have relied on criteria of a range of types as a means of verification of move boundaries, such as the elements of the Problem-Solution text type and the conventions for describing the various stages of diagnosis common to a number of medical genres, as well as lexicogrammatical patterns to provide support for suggested move analysis. Future research could attempt to show more systematically how different types of linguistic features are involved in distinguishing moves, along the lines suggested in the study of social science texts undertaken by Lewin *et al* (2001). This would also allow for easier comparison across genres.

The writing of the student authors appears to be very much dependent on other texts such as textbooks and case notes. Assumptions in this regard have been made based on linguistic clues in the student texts and comments made by students in the group interviews and not by means of direct comparison with these texts themselves. A number of scholars have demonstrated the way that the discourse practices of textbooks often contradict those of the discipline (e.g. Myers 1992; Paxton 2007; Richardson 2004; Swales 1995). Further research could be done to compare the discourse patterns found in medical textbooks with those found in research writing in medicine, particularly with regard to case reports.

Another limitation has been the fact that the preliminary comparison of the metadiscourse in case reports and research articles relied on figures for biology articles rather than for articles published in the field of radiology or even another medical sub-specialty. The study has also suggested that claims made for radiology case reports may be able to be generalised to medical case reports across the field. This assumption could be tested, and comparative metadiscourse frequencies obtained in further studies by extending the analysis done here on case reports to other medical disciplines.

5.4 IMPLICATIONS AND APPLICATIONS OF FINDINGS

The thesis has confined itself to a description of texts as written product and does not have the teaching of writing as a main concern. Therefore its primary aim is not pedagogical but, because the findings of the study are of significance for the development of disciplinary identity in novice writers, they do point to interesting pedagogical applications.

Writing has a vital role in supporting learning and, within the South African context, Dison and Rosenberg (1995: 2) assert that "the development of academic literacy is at the heart of students' ability to succeed at university." Leibowitz (2000) argues that, if writing in particular is to develop successful learning, it should be integrated into real learning contexts. Amos (1999) and Goodier and Parkinson (2005) also call for this sort of integration. The situation for the students whose work is described in this study is that their content lecturer is interested in developing their learning through writing and the case report assignment provides just such an opportunity.

Nevertheless, the design of the task needs careful planning. The case report, although often considered by teachers to be a straightforward narration of the details of a particular case together with a summary of the relevant information on the relevant pathology, is actually a carefully crafted text which has to create a research space and compete for space in journals by means of persuasive rhetorical work. This has implications for how the writing of this sort of genre should be set for students and whether it should be explicitly taught.

Whether genre varieties can indeed be taught is the subject of some debate. Freedman (1993), for instance, suggests that a genre cannot be acquired outside its authentic context and that its nature as social action precludes it from being taught. On the other hand, however, Paltridge (2001: 4), while he warns against the dangers of prescriptivism, holds that "genre analysis can provide students with both rhetorical and linguistic awareness of different genres, as well as a context in which both the general and particular expectations of different discourse communities can be explored." A number of reviews and studies (e.g. Johns 1995; Williams and Colomb 1993) have demonstrated the importance and effectiveness of making students aware of linguistic patterns that occur in the target genre. Carstens (2008) argues that teaching writing in terms of genres within a discipline "cannot simply be dismissed as presciptivist since it shares an underlying schema with postmethod pedagogy". The finding in the current study that students drew on school essay literacy practices in writing their case reports suggests that, as proposed by Lock and Lockhart (1999) for tertiary students generally, they need to be assisted in expanding on their repertoire of genres in ways that will allow them to write appropriately within their field.

Parkinson (2000: 372) argues that students learn to produce texts in any particular field by being set tasks that require appropriate genres and "through being given guidance both on individual features and on how to make their texts more closely approximate the target genre". Marshall (1991) asserts that report writing by science students develops scientific

thinking and, in the same way, it seems that the setting of the case report for radiography students can be a useful tool for assisting students not only to present information and to understand the structure of the texts they read but also for trying out ways of thinking as a medical practitioner.

Parkinson and Adendorff (1997) demonstrate for science that different streams of literacy reflect different ways of thinking in the field. Similarly, the fact that there are different sorts of values for what it means to be a medical practitioner and contesting ideologies in the field could be explored through an exploration of different types of texts. When students are required to write case reports, an understanding of the purposes of this genre in terms of developing clinical knowledge should be made explicit and students shown how professional writers use the particular rhetorical moves which enable them to establish a niche for their work. Encouraging students to use published articles as models would also assist them in appreciating the way these texts are structured and perhaps assist them to be less dependent on the wording of the case notes and the textbook because they understand that the purposes of these different types of text are different. This would provide an important way for assisting student to understand and overcome the problems of plagiarism.

Further to this, what emerges from my study is that academics in the field of medicine need to understand clearly what their goals are in setting disciplinary writing for students. In the case report assignment set for the students who were involved in this study, a major goal was the demonstration of personal contact and involvement with the patient. Possibly the setting of a different sort of text, such as a social history and an account of the patient's experience of illness as opposed to a 'disease narrative' (Sinclair 2000), would achieve this better than a conventional case report, which would not normally have this sort of purpose. There have been interesting experiments with narrative genres to explore patients' experience in the field of medicine generally (e.g. Bleakley 2005; Charon 2001; Sacks 1985; Sandelowski 1991). Students could be required to write both types of report and to compare the differences in purpose, audience and language as a means firstly of achieving a sense of belonging in the discipline, by being able to express their own values and to start extending their identity as aspirant professionals (Inglis *et al* 2007), and then also of critically investigating the sort of identity that is implicit in the different genres. This would also have the result of extending the students' appreciation of the patients' lived experience. It would in addition introduce them to what is expected in publishable case reports, while creating opportunities for critical engagement, so that the role of the professional genre in transforming the identity of the writer into that of the professional may be made explicit for

them rather than being disguised as common sense (Lemke 1995; Paré 2002).

The study has also established the importance of metadiscourse use, in particular hedging, in the professional corpus and it may well be that students should be sensitised to the use of these markers in the texts they read and write. Cheng and Steffensen (1996) have shown the teaching of hedging to be effective in improving the writing of students. Health science students could in this way be enabled to acquire an understanding of the interpersonal nature of their writing and the sort of persona that the discourse of the discipline reveals and constructs. Coetzer (2002) makes a number of suggestions for raising students' awareness of hedging in the writing of occupational therapy.

5.5 CONCLUSION

Writing is an act of social identification and students both construct and are constructed by their written discourse in relation to the context in which they find themselves. This study has accounted for the realisation of this identity in the texts of radiology students, as the purposes expressed by the moves of the genre of the case report unfold, and has compared it with that of professional writers in the same field in a new way, by combining two different theoretical approaches to text, namely genre and metadiscourse, into a single framework as aspects of purpose. That this may be seen to be a contribution of significance in the field of academic writing is suggested by what Ivanič has to say below:

> While language can, to some extent, be donned and discarded like a set of clothing, it also has deeply personal consequences, going right to the heart of our being, defining our social selves. For these reasons, I suggest that issues of identity are not an 'optional extra'…but are central to a social view of writing (Ivanič 1998: 345).

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APPENDICES

APPENDIX 1

LIST OF PUBLISHED CASE REPORTS WITH ABBREVIATIONS

AVGA Aneurysm of the vein of Galen: A case report

BAFE An obscure cause of stroke: Basilar artery fenestration

CTOR Cardiac torsion: a case report and review

CVTH A case of cerebral venous thrombosis following the use of contraceptive medication

DBCY Disappearing breast cysts

DCAR Diffuse cerebral artefact: A further unusual cause

DGCE Dysplastic gangliocytoma of the cerebellum

ENPC Encysted non-invasive papillary carcinoma of the breast

FBRE Fibromatosis of right breast simulating carcinoma at mammography

GPFI Gastropericardial fistula complicating an adenocarcinoma of the stomach

HTGL Primary hydatidosis of the thyroid gland: A case report

IAEA Intracranial air from an extracranial aetiology: A further unusual cause

LDCA Linear diaphragmatic calcification in a two year-old child with tuberculosis

PCTU Paediatric calvarial tuberculosis

PHPE Pelvic hemangiopericytoma: A case report

RRAA Rupture of renal artery aneurysms in pregnancy

SPOL Sphenochoanal polyp: Radiological diagnosis

SSRH Spontaneous subcapsular renal haematoma

TICA An unusual pharyngeal mass: Tortuosity of the internal carotid artery

VGMA Successful endovascular treatment of a large vein of Galen malformation in an infant: A case report

APPENDIX 2
LIST OF STUDENT CASE REPORTS WITH ABBREVIATIONS

ABC	Aneurysmal bone cyst
ACH	A case study on achalasia
ACR	Acromegaly
AMA	Arteriovenous malformation
APF	Astrocytoma of posterior fossa
ARF	Acute renal failure
ASC	Astrocytoma of the spinal cord
BME	Bacterial meningitis in children
HDI	Case study: Hodgkin's disease
HYD	Hydrocephalus
MBL	Medullablastoma
MEN	Meningitis
MSY	Case study: Marfan's syndrome
OSA	Case study: Osteogenic sarcoma
OST	Osteosarcoma
PDI	Paget's disease
RSA	Rhabdomyosarcoma
SBM	Spina bifida: myelomeningocele
VZV	Varicella zoster virus
WTU	Wilm's tumour

APPENDIX 3

STUDENT INTERVIEW SCHEDULE

GENERAL
What kind of writing tasks did your teachers at school set you?
What kind of writing have you been doing since you came to the Technikon?
What writing tasks did you find difficult? (Describe something you did unsuccessfully. Describe something you did successfully.)

CASE REPORT
Have you ever written a case study before?
Did you know how to write a case study? How did you know?
Do you know how to write a case study now? How did you find out how to do it?
Was it different from other writing tasks you have done? In what way?
What do you think your lecturers were looking for in the case study? What did you have to do to do well? How did you know this?
Describe how you went about doing your case study (the process you went through to do the assignment). What helped you?

RELATIONSHIP BETWEEN PARTICIPANTS
Who were you writing for? What was your relationship with this audience?
Who is the audience of the writers who are writing in the radiography journals? Is there any difference in terms of equality/status, background knowledge, personal relationship?
What difference does it make if the audience is different?
What sort of background knowledge did you bring to this assignment? To what extent do you think you shared background knowledge with the audience? Would this be any different for someone writing for a radiography journal?
Did you ever imagine that your case study could be published?

RELATIONSHIP OF PARTICIPANTS TO TEXT/TOPIC
Was writing your case study an important task to you personally? Why?
How important are case studies in the profession?
What was your attitude towards your patient – in the hospital? when you wrote about her? Was there any difference?
Would there be differences if you were a professional radiographer writing for a journal?

PURPOSES/GOALS
What was the purpose of this assignment?
What do you think the purpose of a case study is? Does a case study give information? persuade? Tell the reader anything about the writer?
Where does the information for the case study come from? How did you learn about the patient you describe? the pathologies you describe?

FEEDBACK
What responses did you get to your case study?
What did the responses teach you about how radiographers write?
What else did you learn from doing this assignment?

APPENDIX 4

TRANSCRIPTION OF INTERVIEWS WITH RADIOGRAPHY STUDENTS AND LECTURER

INTERVIEW 1

Students: B, K, M, S

What kind of writing did you do at school, in comparison with Technikon?

M: Well, the only projects we did at school was mostly History, that I can remember, the only ones that I've done.

When you say projects, what does that entail?

M: Just like basically they'll say to you, a project with writing and pictures, and it wasn't set out, you could put it any way you like, and you could decorate it as much as you like, they just looked at the content.

OK, so where did you get your content from then?

M: The library. You just picked a subject and went to the library and looked.

S: There was no specific APA style.

M: Yes! (laughter)

B: We didn't have the APA style. But I find, our bibliography, we had a different way of doing it. We got a photostat of how to do our bibliography and it was totally different to what we do now.

So there were some things in common then, obviously they were worried about how you presented certain things.

B: Ja.

M: Not in school, not in my school.

B: We did. A lot.

M: They didn't care about how you put an item when I was at school.

B: We did a lot of practical as well, like practical assignments, Geography.

K: I never did anything like that.

No writing, no assignments?

K: It was just comprehensions, and that was it.

And essays, for English?

K: Ja.

S: Ja, lots.

B: A lot of essays.

M: Ja, that we had a lot!

Would that have been like more creative writing, stories, that kind of thing? (all nod)

So you're talking about a more factual type of writing when you talk about History projects.

M: Ja.

So you did a bit of that, but mostly narrative, creative writing?

M: And they said they wanted a contents and a bibliography but they didn't tell you at all how they wanted it, they didn't really mind how they wanted it.

OK, so it was pretty free. What sort of things do you think they wanted you to do when you wrote at school?

M: I suppose they wanted you just to…what was I going to say?

B: I think they just basically wanted us to look up in books and see what we could find, it wasn't as complex as it is in tertiary education.

So what's the difference, you come to Technikon and they ask you to do what, in radiography?

M: Do a project.

B: And you've got to find as many sources as you can, you know, not just one book.

M: And it can't be old, it must be like new sources, and then for something like Management where you can't find anything new really, the best information you can get is in old books, the new books are all this thick and it's all on time management.

S: I think why they want us to use new books is because radiography improves the whole time, there's always new things that come forward…

M: But then the library's going to have the new books for once.

What was the best assignment?

M: Case study, I enjoyed the case study.

B: The case study, definitely.

S: I agree.

K: I'm not sure.

Why?

B: 'Cause you see, you sort of interact with the patient as well, and you do research at the hospital as well as at the library, so it's not only library work. And you can speak to doctors and things like that.

So was it interesting. Was it easy?

B: It was very interesting, I wouldn't say it's easy, it was a lot of work.

S: Because it was so interesting, it was enjoyable…

M: I liked it because I could pick something I was interested in, they didn't tell me this is on this subject and you have to go look up that and it's something you actually don't want to know about, I could pick my own subject and I could pick something I wanted to do and I could pick, what I picked I picked like everything that's with that, also things that I'm interested in, so that if I go deeper into it, it's also things that I'm interested in, and the case study was the best for me.

K: For me it wasn't the easiest thing to do, as in the best or something but ja it was difficult I had to choose my own thingie and all that but a difficulty seeing the doctors and stuff like that.

B: Ja, retrieving folders and information.

K: It was kind of difficult.

M: That's mostly because of the hospitals we were in. That's a bit…

S: The X-rays I wanted to retrieve were misplaced. They were supposed to have so many X-rays, and they couldn't find any. But at least I was in theatre when the patient was operating, so at least I took one radiograph of the theatre which was interesting.

How did you go about finding out how to write a case study?

M: What was nice about the case study was that they didn't give us the contents, they didn't say you had to have the history, the… like a set out thing. What I did was I looked for a patient, and I looked if I could find everything on her, if I could find all the X-rays, could I find everything I wanted, and then I picked the patient and then I went and I looked up her illness, and from everything I looked up, I took subjects out of that, all the information I could get, I took my contents, my page of contents from that. Like this said the history of these patients are usually this, and I made one of my headings history, and then as you get the information, that's how I compiled my contents.

OK, and what about how you structured the whole thing, and how you knew how to write a case study as opposed to an essay?

K: It was basically finding things and subjects according to what you find from the patient.

Same with you? Did you look at any other case studies?

B: Yes, I did. I found other case studies to see how they set things out.

M: I must say, I didn't really think about how it's different from…I just went on…that's what I liked, it was a bit more free, it wasn't like set out rules of how you had to have it, so you could just do what you wanted and we still did well. I don't know, I think [the lecturer] did tell us a little bit about how a case study should look, but not really, it was mostly free to do what we wanted to.

S: It made it a bit easier looking at other case studies first.

Where did you find other case studies?

B: From previous years. People that did it in previous years. We had a look at theirs.

K: That's why I didn't enjoy it as much, because I didn't see anything from previous years or anything. I just had to do it from the start, from scratch. I didn't have any idea what…

You didn't have a model or anything. Just the little bit [the lecturer] had told you.

K: No, that was it.

M: I must say that of all the lecturers we had these three years, she was the only one that really, to me, personally, told me the most about how to do a project. The rest of them just say do it, and then they still say to you this is how I want it, and then you do it like that, and the next lecturer doesn't want it like that, and then you lose a lot of marks…. I actually think we should have more case studies. I enjoyed it so much. The other projects we did weren't nice at all.

What other projects did you do?

M: We did an equipment one of how you would equip a new X-ray room.

Was that the first one you did?

M: This year. The first one we did in the first year was how to mark X-ray films, and then the case study…what else did we do? I can't remember last year…

B: We did that heart and liver function assignment…

M: Oh yes…

And that was also a written assignment?

M: Yes, but she gave us headings for that one, remember, she gave us headings.

B: But we could choose between the heart and something else, bone or something like that…

M: Oh yes, ja.

So they were basically based on what you were learning in lectures, whereas with the case study you obviously were much more dependent on your own research and your own experience.

M: Yes, that's true. And it was…you could make it something that's applicable to yourself, to your work. It wasn't something like…we did an AIDS project this year and we don't really work with AIDS, we work with AIDS patients, but we don't work with AIDS itself, we only work with patients who get sick, who get TB or something because of that, but not really with AIDS itself so much, so we had to do a project about stats and all kinds of funny stuff about AIDS, which I just felt was not applicable to me at all. I will never ever use it again in my life.

B: I think it's also very useful because later on, you know, there are a lot of staff that we work with that actually write case studies in our Society of Radiographers magazine that comes out every six months or so. And I think, you know, it might be valuable for us one day if we have to write a case study so that we've sort of got an idea of how to do it.

M: It's with the CPD points that we're doing…what do you call CPD?

Continuous professional development.

M: Yes. With that you can get extra points if you do a case study, then they give you extra points for your CPD.

B: That's only when you become staff. We don't do that now.

M: Ja, ja, as staff.

But some students have written case studies and had them published.

B: Ja, ja, no, I'm talking about the CPD points.

What sort of thing would make a good professional case study then? I mean, what's the difference between your writing and a professional case study?

M: I just feel this APA system…I don't know it, I still don't know it…

B: I think we need some more experience in writing case studies, I mean if we'd done more case studies, we'd be more confident to do them and publish them, but I mean by doing only one, I don't think that gives you enough confidence to go and publish it now for the world to read!

But how are you going to begin?

M: I think I'm going to do just like I did it before, but then I would go further and go and show it to people and ask them to tell me what's wrong and how I can improve it.

I'm also interested in why you didn't have a look at published case studies. Were you given any indications of what to do to prepare for the case studies? Nobody ever suggested anything to you?

B: No, not really.

M: I suppose we could have done that.

Did you know that there were…you sound as if you know about those journals in the library?

M: Yes…

B: Ja, in libraries and that, ja, definitely, I mean, I did have a look at old ones, but not really, you know, I looked at the case studies that they did the previous year, that the students did, not professionally done…

M: The ones professionally done, they look so…the ones in the Radiographer book that we get, it's so short, it's like two pages, whereas ours was like 10 pages.

That's an interesting difference. Why do you think that could be?

M: I don't know, I suppose they don't have space to re-publicate a 10-page essay.

Oh, okay, so obviously there are constraints on space.

S: It's difficult to make it so short.

M: Yes.

K: I think it helps through that peer editing.

To condense it? Yes, that's a very interesting point. Okay, so you started off not knowing how to write a case study, now you know how to write a case study.

K: But I think they should tell us more when they're giving us a case study, they should tell us more about the options we have, what we have to do. I mean like going to the library and seeing the professional case studies, or whatever. They should tell us more because they shouldn't ask you that we all know how to do these things ourselves.

M: Another thing this year that really, really upset me was that we had three projects and we handed them all in and got it the day that we handed our last one in, they gave us the other one back, the first one, and then only we could see what we did wrong, so we couldn't go and fix anything in the others because they were already handed in.

You never got a chance to get feedback? What do you think [the lecturer] was looking for in case studies?

M: She was looking I think more for what you were writing. The others were looking more at structure, and…they didn't say anything about what you found out. They just made a comment about…it looks like you learned a lot out of this project. They didn't actually see that what…you know, they didn't really look at the contents or the factual stuff, they only looked at how you put it out, they didn't really look at…

B: I don't think so…

M: No, but you did well on yours, that's why!

B: I think they looked at everything, because, I mean, they marked on everything.

M: I just found that they concentrated more on that than on the other stuff.

S: Where are your headings, at the center or at the left side of the page…

B: That is a bit ridiculous!

Now do you think that would be important if you were writing for publication?

B: It probably is.

S: Ja.

K: It would be a bit, yes.

M: It would be, but why couldn't they tell us at the beginning that they wanted it like that!

B: Ja, I never knew you did it like that, I thought, you know, you could really place your heading where you wanted to, I mean, you know, within a range, I'm not saying, you know, go and put your heading at the bottom of the page or whatever, but, I mean, centered or left aligned, I didn't think that really made a difference.

S: Some people we know did really bad. The information that was in the assignment was adequate, and yet they …they failed.

Why?

M: Because of the structure.

S: It's the structure.

So what you've just said is that she's actually more interested in the content, although she did say certain things were important with regard to layout?

K: She gave us…like the thing…marking grid…

B: Marking grid, ja.

K: …to see how you're doing as you go along, to see that she's going to mark you on this, and…

M: Like the poster, remember, that was like…she like set out exactly what she wants you to do, and when you just…if you didn't do something, she just marked you off it. So you had to just do exactly what she told you, and you could have gotten full marks.

Okay, you've just been saying that the lecturers are not explicit enough, they don't tell you what they expect, but now it seems like she told you exactly.

M: She did, but the other ones don't. And they didn't want what she wanted. She…as I say, she went on actual where they went on structure.

So could you do very well then, if you just followed everything she wanted in the marking grid?

M: Yes, she was fair when it came to that.

B: Mmm…I don't know. She didn't tell you exactly like…left align, do this, she basically said contents, you know, you must proofread, do this, do that. But she didn't say, okay,

it must be on 12, and it must be bold, and it must be left aligned. That was left to us. But she basically gave us what she wanted.

M: And she didn't mark us on that either. She didn't mark us on where you put it, or if it was bold, or anything like that.

So she was very fair, she marked you exactly on what she said…?

M: As long as it was constant through the project, like if you had bold, you had bold on every heading everywhere, not like bold here and there…yes.

So was it always quite clear how to do the things that she wanted, do you think?

B: Most of the time, I think. Most of the time. I mean, every now and then you'd sort of, you know, wonder how you should do it. But most of the time it was clear how to.

So the use of the marking grid is actually a helpful thing.

B: Yes, definitely.

That's interesting. One of the things I wanted to ask is how you went about doing your case study, the process. You basically told me you looked for a patient first, in terms of getting information about the patient, then you went and researched it, and then you wrote it up. Now would all of you have done it in the same sort of way?

B: Ja, you do have to start it that way. You've got to know what you want to do before you start. So you have to find your patient first.

M: You can't like find the illness and then go and look for a patient with the illness.

Were these patients that you yourself had dealings with?

M: Or that you saw…what I did is I looked for one with the thickest X ray packet! (laughter) The more X-rays it had, the more different examinations they've had and the more I can put in radiography wise, because that's what I'm doing, I'm doing radiography, I'm not interested in anybody up in theatre getting something done there if I'm not working with that person. So I was looking for the thickest X-ray packets, and then from there I looked at what was in it, was it like MRI and CT and X-rays and ultrasound and…yes, yes…

B: I didn't do that!

M: And then I decided from that, it's the illness, is it an interesting illness, is it not too…what's the word…

B: Common?

M: What's the other word for common…if it's not…

Unusual?

M: If it's too unusual you can't find a lot of information on it. So you must pick something that's not common, but is interesting that nobody has had before, but not so much that you can't find any information on it, there must still be like quite a lot of information available on it, and that's what I did.

Okay, and now you said you didn't do that…

B: No, not at all! (laughter)

So how did you go about it?

B: I actually went from ward to ward and I'd speak to the sisters and the doctors and I'd find out what interesting cases they've had or patients that they do have. And then they gave me a list of patients and then I'd go to the next ward and I'd choose the most interesting one from there.

You'd do that in terms of what was wrong with them?

B: Yes, their disease and that, you know, something that's not too common. And then…cause it was nice because I knew the patients were there and I could go and speak to them, or whatever.

S: Mine was also a bit different. The disease attracted me at first, 'cause I was in theatre and they were operating on this man, and the man was a hospital patient so I knew where to find the man, and he had acromegaly so the disease really interested me, so I went about it that way…

And then they lost his X-rays?

S: Ja! (laughter)

K: I tried going ward to ward but it didn't work. Nobody found anything for me. Then I tried asking somebody working in CT to find anything interesting they see, and it didn't work, so I went to radiotherapy and they told me they had an interesting rare case, sort of. Turns out it's not as rare, it was rare at Provincial! (laughter)

But not rare in the medical world!

B: What was it?

K: It was an astrocytoma of the spinal cord.
B: Oh, okay.
So this was obviously put across to you, that it was quite important to have somebody interesting, an interesting sort of case, or…
B: Ja, she said she didn't just want the normal sarcoma, or…
M: Ja, she wanted something extra, she had this list and she wanted something different.
B: I think there were marks for that as well, on how interesting it was.
M: Ja, definitely.
So what did you do?
B: I did Marfan's syndrome.
M: That was quite a good one.
And yours?
M: What was it…renal…acute renal failure.
And what was yours?
K: Astrocytoma of the spinal cord.
So they were all unusual cases?
M: Mine's not very unusual, but the fact that she only had one kidney, and the clinical history was interesting, the fact that they didn't know what was wrong, they were jumping between…what is it, is it this, is it that, and they couldn't find why she was having problems…
Well, that is interesting. Do you remember whether…the feedback that you got, that [the lecturer] thought that was interesting?
M: Yes, and the fact that the religion also had an influence on…
Oh, I remember that, she didn't want transfusions and that sort of thing, and in the end she said she would?
B: Was she a Jehovah's Witness?
M: Yes, she actually had a kidney transplant last year, at the end of last year she went in for it.
B: See, that's what made it more interesting, even though it wasn't, you know…
M: And I still see her a lot.
Now getting back to this thing about the published case studies being very short and your case studies are longer, and obviously [the lecturer] didn't say, I only want two pages?
M: Ja, she wanted about ten.
Why? Why do you think what she wants is different to what the editor of a professional journal might want?
M: I suppose it's not exactly the same thing, what you give in, as…
Well, what would be different about it?
M: It's not to be published.
B: I think it's more broad as well, I don't know, I just think the topic is probably more broad. You learn more about it, you know, I don't know. If you know you're only going to write a little section…
K: You don't research as much.
B: Yes, you don't search as much, you know, you'll probably, find, say, a nice paragraph and think, oh well, this is it, you know, and then write the paragraph down.
M: Yes, that's true! We're still students and we are still lazy! (laughter) And we'll still rob from somewhere else!
B: Not word for word, but, I mean, you know, take that paragraph and say, well, this is an interesting paragraph.
M: Ja, we'll still be robbing somewhere else, and if it's a short thing, you won't put in so much as you would for a long one.
Are you saying that part of the purpose for writing this was to learn?
All: Yes.
Now what would the purpose be of somebody writing to get CPD points? What would your purpose be, apart from the CPD points? Would your purposes be different?
M: I think it would also be, if it's something funny, like something unusual, to have other people know about it, some new technique or something interesting.
So not so much to learn yourself, are you saying, but to actually share information, communicating something that other people don't know to them?
M: And I suppose the CPD points will also help a lot! (laughter)

K: I think it would also improve your writing skills, the process.
Is that important? Do you think it's important to have good writing skills as a radiographer?
M: Yes, but it wasn't usually more important, but because of this CPD points system that's been put into place it has become important, because it's constant learning for the rest of your life, whereas people I know that have been in radiography for a long time, they don't worry about this, they study radiography and they just go by themselves, they don't worry about studying further. They just go on with the knowledge they have. And whatever they pick up in the meantime, they pick up, but it's not like they go and look for something to learn to use.
Now, we've touched on this, I think, but I just want to focus on it a little bit more. When you were writing, who were you writing for? Because every time anybody communicates, they're communicating to somebody. So who was your audience? Who were you writing for when you wrote those case studies?
M: I was thinking when I was writing mine, when you get some information, and it's very technical…I wanted it to be so that anybody can understand what I'm writing. That's my…everything I…whenever I do any project, I want it to be so that anybody I know can read it and understand it…
B: Ja, the normal person that would read…
M: Ja, a normal person, not so much like…I think with case studies like that they want to write more for the…people that…
S: Trained medical people…
M: Trained medical people that will understand this weird sentence like…
B: Sometimes when we read some of these things we don't even understand them ourselves, you know, and I mean, we're in the field, so…
M: Well, that's just my personal…I always write so that anybody can understand. I don't know why I do it, I just do it.
S: Unless you put it in medical terms to make it sound like a medical project, not too…
Okay. Who read it, in actual fact?
M: [The lecturer].
K: And you.
But you didn't know that at the time. Okay, so you felt the sense of writing for a general audience, you sort of imagined a general audience, even if you knew only [the lecturer] was going to see it. Now do you think she had any expectations about…?
M: I think she would have loved it if it was more medical.
B: Ja, definitely.
M: She would have loved it, it must be like very high tech medical stuff.
B: 'Cause she likes to learn herself, you know, she doesn't really like to read anything too simple, she likes to learn something from…
So she wanted to get something from you that she didn't know?
B: Yes, yes.
Do you think she did?
M: Not really! Maybe just a little bit! (laughter)
B: I think she did, I think so, ja.
K: She didn't ask me anything at all.
B: There was something she asked me, I don't remember what the question was, that she didn't know about…
M: Ja, I remember, she asked something.
B: She asked me something, I can't remember exactly what the question was.
Now, who do you think the people who write in the radiography journals are writing for? Who's their audience?
M: Radiographers.
S: Radiographers.
B: Ja.
People in the field? Now, [the lecturer]'s in the field, so is there any difference when you write as somebody writing for a journal and you write this case study for assessment in your second year?
K: I think there is…because you sort of know that she expects you, sort of, write like this, and then the audience, they just, whatever comes along, I mean, they sort of expect it

to be technical to a certain extent, but not as much as she, cause she's going to give you marks for it.

So, assessment, marks, is the big difference? So that's something about the relationship between you and your audience?

M: I suppose it's also for yourself, I mean, if you don't do it…if you do do it, you will feel afterwards…oh, you know, you'll feel good if it's been published, yourself, but if you don't publish anything, ever, it's probably not going to bother you, understand what I mean, I don't know…

Would it bother anybody else if they never publish anything? I mean, do you think it's an important part of being a radiographer?

S: I think it makes you feel better about yourself.

More confident in your role as a professional?

S: Ja. You feel like you're growing, or something.

B: And you're doing something for your profession, basically, you know, sort of building it up.

Like a sort of conversation? Do you talk about the cases that you come across in the hospital and that with other people in the hospital, with the…

B: Yes, a lot, a lot!

M: Most definitely.

And is that interesting to you? Is that important?

M: I will phone someone and say, please come and look at this, this is like…ja, we do that all the time. We get very weird stuff, very weird.

That's interesting. We've said that the audience that the professional radiographers writing in the journal are writing for and the audience you are writing for are different. Do you think it makes a difference to how you write, do you think it's different what you actually come out with if you're writing for [the lecturer] or if you're writing to publish?

B: That's a difficult one.

What differences would there be if you were now sitting down to write a case study because you wanted to publish something?

M: If I would publish it I would just get much more people to re-proofread and tell me, take this out, put this in. I would need people…like [the lecturer] tells me, this is not right, take this out, this looks funny, whatever…

Why? Why would you take so much more care?

B: Because more people are going to read it, but if [the lecturer]'s only going to read it, it's not for the world to see, you know what I mean? So in other words, you just try a bit on your own, but if you know it's going to be published professionally, then you know you've got to put more effort in.

M: Yes, I suppose also…there's the time thing as well, because I'm not the best student there is on earth, and if I get a project, I do…I get my information before the time, but I usually compile it just before I have to hand it in!

Okay, now, what kind of background knowledge did you bring to writing this case study?

M: I suppose we used a lot of anatomy and physiology and pathology research that we were doing.

That you learned in your course?

M: Yes, definitely.

B: Ja.

M: Yes, if we didn't have terminology, we couldn't have written it, we couldn't have…understand what you read. If I had to write this just straight out of matric, I would have been a bit lost. I would probably have been able to compile something, but it was much better like this, already having the background.

So it sounds as if you relied quite a lot on research, looking up stuff in books and that sort of thing.

M: Yes, yes.

B: Ja, definitely.

M: Completely, I'd say.

Where did you get that information from? The library here?

B: Ja, this library.

K: And from the medical libraries at the hospitals.

B: Ja, and we used the medical libraries, we used our resource center.

M: Our resource center is very good, in Frere…East London.
B: At Frere, ja.
M: Yes, in East London, at Frere, and I must say, that resource center has got a lot. But the problem is, if you are here, and you have to go and find a project…
B: Because you see, there they focus on medical books, here there are not really medical books, this is, you know, more for students, and you know, that's more for doctors and physios and whatever…
S: I got my information from the…my doctor friends, the interns, they had…they still had lots of books from…medicine.
M: When they were studying.
S: And I used them. That was much better for me than our hospital's books.
And you?
K: I used the medical library, where they've got old books…
S: Ja, very old books!
Really? Now were you also at Frere?
K: No, I was at Provincial.
And you were…?
S: Provincial.
M: The problem with these libraries is that they've got old books, all of them. I must say, this one has got, on radiography, the subject of radiography, they've got a few new books, but when…a case study is not so much radiography, it's more pathology, and they don't have pathology because nobody here studies pathology really.
I was told that Livingstone had a very good resource center.
M: I don't know about that. I actually only found out about that resource center like at the end of this year. I didn't even know they had one.
B: Which resource center?
M: Livingstone has a resource center just like ours.
B: Really?
M: Look, I don't know what it is, if it's as good as ours, but I've heard that…
So you were fortunate to be at Frere. Did you write while you were there?
B: Yes.
M: I didn't write while I was there, I just compiled all my information when I was there, then I put it all together, then I…because we also didn't have access to computers and things. We only have that…where did I do my case study? I can't even remember where I did it, on which computers. Oh ja, I did it at home, on a friend's computer. And I also got a lot of information out of the doctor, the patient's doctor. I went and I sat down with him and I had questions that I asked him, and I got a lot of information from him. He filled in like a lot of gaps, I would say, which you couldn't find anywhere else.
B: And it takes so much less time doing it that way too, because if you have to go and research or look it up, it'll take you ages.
M: I was lucky that the doctor I had was quite…it was his specializing, that field, so…
So he was actually interested?
M: Very, ja, he was very helpful.
S: And also what helped is the notes the doctors made about the patients and stuff, the patient's folder.
M: Yes. Ja, that's also how you knew how to start looking for something. They would say, they looked why she had…why this happened, and they'd say…they, what do you call it…they investigated this illness, maybe she has this illness. So you could go and look up the illness and put it in your project. And then they'd say but then they find that it wasn't this illness, they thought it was this illness, and you could go and find that out, and that's also how you get information.
Did you also ask the doctors and people for information?
B: Yes, ja, and folders as well. Because on the folder, for every folder, they've got like all the different doctors that write their comments and that, so you know which doctor actually saw the patient, so you can go to that specific doctor and actually speak to them.
M: We're lucky at Frere. I don't know if it's at all the hospitals if it's like that, I don't know how…
B: You actually feel quite privileged, in a way.
So how did you find it at Provincial?

K: I wasn't lucky enough to talk to the doctor, cause he was always busy, out of reach.
M: Yes, I must say, I don't think that it's like that in all hospitals that the doctors are like that. I found it mostly…because you knew your doctor, from a friend of hers, but think of all the other doctors in your hospital. Do you think they would help you?
S: I don't know, I'm not sure.
K: Depending on which doctors work there…
M: Yes, our doctors, I must say, Frere's doctors are very nice and helpful. I don't know. In general, I find the doctors much more down to earth and helpful than other hospitals' doctors. I don't know. That's just personal.
Well, then you were obviously lucky to be there. Okay. Now, the task of writing a case study, was it important to you personally, or was it just another assignment?
B: I think then it was just another assignment, but now, but afterwards, you actually realize that it actually is more important.
M: Now that we've done all the other projects, I realized that that was the best one, and I would do another one anytime.
Okay, so in retrospect you look back and you realize that it was interesting, and you learned a lot, and all the things that you did. What was your attitude towards your patient? Now, some of you obviously had more of a relationship with the patient files than with the patient! But if you…was it you who said you went to talk to the patients? What was your attitude towards them in the hospital?
M: It was part of the project that you had to go and speak to them and interact with them. It was…she wanted us to do that, so…
B: Ja. We had to.
Now do you think there was a difference between how you felt towards the patient when you actually were speaking to them and then you wrote about them afterwards?
M: Yes.
Did you have to distance yourself when you wrote about them, or did you feel quite distant from them when you spoke to them?
M: I think you had to distance yourself when you wrote it, because you can't personalize it. You can't say…you have to do it in a third person…so…and then…
B: You can't really put in your emotions, you know what I mean?
M: It wasn't like you were talking about the patient. The project was about the illness, it wasn't about the patient.
Okay. So that's the reason why you can't make it personal, cause you're interested in the pathology, or the way the diagnosis was reached rather than the person?
B: And then, also, it's an opinion, not a fact. I mean, how you feel is not how everyone else is going to feel, you know, so that's your own personal opinion. This is more factual.
Now the fact that you were actually researching this person, did it make you feel distant from the person when you were sort of interacting with them?
M: I felt scared to talk to her, because I was feeling, I know so much, and I know that her chances of survival were so small, and it felt bad every time you read it, all the bad things you read, and you think to yourself, she's actually so bad off, and she could be so much worse off, and if she doesn't get this kidney then she is going to die in five years time, you know, and you can't tell her that, and…I suppose that was how I felt.
But in a way, you've got different roles to play, your role as a professional and your role as a fellow human being. Do you think there's a tension?
M: Yes.
B: And you also sort of know what can happen to them later on, you know, what could, you know…
M: Get worse or whatever.
B: Affect them, ja.
K: It makes it very difficult to encourage them, to say it's going to be all right, because you know it's not going to be all right any longer.
Now do you think professional radiographers have exactly the same sort of thing, the same sort of tension between their different roles? Do you think so? (nod) We've talked about the purpose of this assignment, [the lecturer]'s purpose. Did you know that before you began, that she actually hoped to learn from it, or did it just sort of come out in the response?
M: I don't think so.

B: I think so, because that's why she sort of gave us a choice, you know, to see what we could come up with, not something that she already knows about.
What sort of communication purposes do you think a case study has? Is that its primary purpose, to give information to the reader?
B: Yes, I think so.
Does it persuade the reader?
B: I don't know about persuade. In what way? What do you mean, persuade?
Do you have any sense in which it's going to change people's attitudes or whatever, or it just information?
B: I think it does make people more aware, you know, it definitely does.
Aware of?
M: If you've got a case study like this, and they get a patient of that, then they'll note it more, they'll…
But that's information, then, really, isn't it?... aware of things they didn't know before, of information they didn't know before?
B: Yes, ja.
M: Or maybe you can say that this is the technique in your case study, they might think, they'd say, that's not what we do, and they might tell you they're going to do a case study as well, trying to tell you this is also how you can do it, or something like that.
So, there can be a persuasive aspect to it as well?
M: Yes.
Okay. And does it tell the reader anything about the writer of the case study?
M: No. I don't think so.
B: Tell anything about…?
When I read a case study is it supposed to tell me anything about the attitudes, or who the writer is, or where they come from?
B: I don't think so, no. Because you don't like convey your feelings, or…you know, it's just basic information.
So it's basically information…
M: And I don't think it's supposed to be like that, it's supposed to look like something out of a book. If you read a book, you don't think, a medical book, now, you don't think, the author…you think, the pathology…
So you're focusing on the information?
M: Yes.
B: Ja.
And there are certain…I mean, that would be the sort of professional way of doing it in radiography?
B: Ja.
Okay. Can you remember the feedback that you got from [the lecturer] on your case study? In general terms, what kind of response did you get?
M: Oh, I can't remember. I just know I did well, that's all I care about! (laughter)
So she responded with good marks?
M: Yes, that's all I care about! (laughter)
B: I think she was quite happy with our case studies, with most…most of them.
Do you remember?
K: I'm not sure. I did okay, though I don't remember what she said.
M: I think it's the only one I did that I felt that I deserved…that I got the marks I deserved.
Okay. So did you learn anything about how radiographers write when doing your case study?
B: Not really.
M: No.
No? What else did you learn from doing this assignment? You obviously learned about the case…
B: Computer skills. (laughter)
M: Yes, definitely.
B: Because, you see, we didn't have computers there, so we basically just had to, you know, figure things out ourselves, and battle it out…
M: We only got computers now.
B: So it took us a lot longer.

M: I'd actually forgotten how to type. Somebody typed mine for me. I didn't know how to type. I didn't…I couldn't even really type, I typed like…
B: Okay, I did the typing myself, but, I mean, you always needed help from somebody, you know, please come help me with this, and please just show me how to do this…
M: You'll just press one button and everything will just go out all over the place, and like, what did I do now, you don't know how to fix it or nothing!
S: Because we didn't have computer skills then. We do now.
K: I did!
M: But then we didn't have a computer to be able to work on. Because we didn't know we could work on these computers here, and we weren't allowed to work on the other ones because we didn't have computers.
So you had to find someone to help you?
M: Ja, like phone your friends' friends, who you're not really friends with, to help you, and you feel this big.
B: Print out assignments at quarter to eight in the morning just before a lecture! (laughter)
S: Oh ja!

Discussion becomes general.

INTERVIEW 2
Students: T, J, P, D, A, Q, N

What kind of writing did you do at school?
P: Essays.
D: Only essays.
Like creative writing, stories and this kind of thing?
P: Ja.
And did you do any type of writing that was like what you do at the Technikon?
All: No!
T: We actually, our assignment, that was…the first assignment we did was in first year and it was a total bomb out. All of us, we were called in one by one by Professor H and she told us, this is what you did wrong and these are low marks because of this and this and this, and nobody had told us before how to do it. So because of that and because of the way we were called in, we actually…we complained and [the lecturer] got somebody in to explain the whole procedure to us.
Oh, did she get somebody from the writing centre?
T: Yes.
So actually the lecturers just expected you to know how to do it? What kind of writing was that, what kind of assignment was that?
N: The first assignment was…where we had to…the processing of the film materials, the X-ray systems.
So you had to explain how the systems work?
N: And how we would operate it in the hospital, and how we actually would take out the stuff. And we had to go to places like…what's that place where they manufacture these things?
T: The technical companies. We met biotechnicians, they gave us all the information.
D: They showed us how to do it.
And other kinds of writing that you've done since you've been here?
N: Projects, like that. *(points to poster on the wall)*
Posters. And apart from that? Any other sort of assignment?
P: For physiology also.
D: The first physiology assignment.
Which was what?
P: Functions.
By then you were more comfortable with writing…what the Technikon wanted?
P: Ja.
So it got better, you didn't all get called in and told off?
T: It's a learning process. It becomes better all the time. And because we know now who to ask and what to ask, it's better.
And then in your second year, with the case study? You'd never written a case study before when they asked you to do that. So did you know how to write a case study?
A: No, we asked around.
You asked around?
A: Ja, the senior students.
And what kind of advice did they give you?
A: When we got the assignment, and they had like…how do you say…guidance to go about it and stuff.
I saw that rubric, so that's basically what you had, that rubric. And then also you asked people? Did you look at any case studies?
A: Some of us did.
Where did you find case studies?
A: I know that some of the girls who's with us in the class, they asked previous second years.
So how does a case study differ from the other kinds of writing that you've done in radiography?
T: I suppose with the case study…honestly we didn't get involved with the patient, but I think in a case study you should get involved with the patient and to really know what the patient's disease is about. But we didn't…I think we did ours three days before we had to hand it in!

D: Ja, actually I did mine like two weeks before, the patient was there so I had to talk to the patient and he gave me his whole story from the start, what happened and how come he's in the hospital and all that.
And that was what you were supposed to do?
D: Ja, interview the patient.
So these were people that you had seen in the radiography department? And you did have a chance to talk to people?
N: Except when the patient's a baby and stuff like that, then you can't talk.
And then …did any of your patients actually die?
Q: Ja, my patient died. He died afterwards.
Oh, after you'd actually finished the case study? Is that hard for you, to get involved with people, and then sometimes they're very ill and they don't recover? Do you find it difficult, or don't you have time to get so involved?
P: You don't get so involved.
T: I think you get desensitised to what you see in the hospital all the time. You see it all the time, I mean, people die all the time, so it's not really…no, but the thing is, it's a hospital environment, so, you know, really, it becomes second nature.
D: Another thing is that you just X-ray a patient, you don't spend a lot of time with the patient, you just X-ray and they go.
Now what do you think that the lecturers were looking for in your case study? What would have made a good case study, as far as your lecturers were concerned?
T: I think they were actually trying to see if we really went out there and spoke to the patient, if we got more information from the patient than just running around looking up things.
N: If you understood about the disease.
So, personal knowledge of the patient and then an understanding of what the disease is about.
N: And maybe see what we understand from what we do.
P: They wanted something interesting. Because I wrote it on something common and I got low marks.
Now did you know this before you did the case study?
T: Yes, she did, she said that you must try and get something interesting.
So you basically knew what was expected before you went into this? What was the first thing you did?
T: We went back to the hospital, it was time to go back to the different departments there, and then what did we do?
P: But we don't start with the things when we get them, we just leave it until the last moment, we always do that. Then we run around. That's what we always do!
When you wrote your case studies, who was your audience?
P: The one who's going to mark it, the lecturer.
N: [The lecturer], ja. Because she's the one who reads it and marks it.
T: I think initially you want to get everything in order for the lecturer, but when you start typing out and reading your information you get more involved in what's going on with the patient and everything.
So then who does your audience become? Who are you writing for then?
T: I think it's for yourself, because I mean after that case study you realize that there are patients with backgrounds, there are patients…like, I mean, we don't get patients, we don't sit and talk to our patients, or see the patient in the morning and afternoon and…but through that case study you really start understanding the patients are in the hospital, and they have parents who come in and see them, and they have backgrounds, and they're not just lying there and out again.
That's interesting. Now have you ever read a case study in a radiography journal, because some students have had their case studies published. Did you ever read any of them?
P: I read one they wrote about the Vein of Galen…It was one of the staff who wrote it.
Now when did you read that case study? Before you wrote your case study?
P: Ja, it was before.
So you'd read case studies in journals before you wrote your case study?
P: By the time I wrote my case study I'd forgotten about that one!

Who do you think the people who publish case studies in journals, who are they writing for, who's their audience?

N: People involved in the field.

So do you think that's very different from your approach to your case study? Did you ever have any idea that your case study might be published?

All: No.

So you saw it strictly as a Technikon assignment to satisfy [the lecturer] and get a mark? Now another thing I'm interested in is what sort of background knowledge did you bring to this assignment? Would I be able to write a case study? Do I have the background knowledge?

T: After researching all of ours you should!

But what kind of knowledge do you need? What sort of research would you do?

P: Books.

So did you go to the library?

All: Yes.

What sort of things did you look up?

N: There was a register of books on any subject, journals and books.

D: The medical library. They have a register.

So that's what you looked at, you looked at journals and books?

D: We spoke to the doctors.

N: Ja, we had to speak to the doctor first, before we had…

Were they helpful?

N: Ja, the one I spoke to was, the pediatrician there.

Now, again getting back to the audience, which seems to be [the lecturer]. Do you share this background knowledge with her? Does she have the same background knowledge as you do?

All: More.

D: She has more.

But she never met your patient, did she?

D: No, she didn't.

A: But she knows about the disease.

P: She knows more about the disease than us.

So then, you're writing for somebody who already knows basically what you are going to write? Is that how you felt?

All: Ja.

D: Make sure you don't make any mistakes and stuff like that.

So you think you actually knew less about what you were writing about than the person you were writing to, the lecturer in this case? Now what about people who are writing in those journals, these people who have had their case studies published? Do you think they know more that the people they're writing for, or less than the people they're writing for?

All: More.

T: More about the patient that they're writing about.

P: Ja, more about the patient, it will be, because I'm sure they've also had to go through it themselves, to write.

So the purpose of this assignment then was to give you a mark, basically? What do you think the department wanted to do by giving you this assignment, apart from give you a mark?

N: Experience in writing assignments.

But now are you going to write assignments when you are a radiographer?

D: It depends. If you're going to do your BTech, maybe.

T: Or to keep up with the knowledge. People all the time are doing different things to stay up to date with the systems in radiography, so it's a learning experience all the time.

A: I also think that having to talk to the patient gives you an idea of where the patient comes from, and not to just get a patient in and do the X-ray and get him out, you must be interested and ask him how he's doing for the day, and all that.

So now did that make a difference to you afterwards? Do you think that you were more concerned and more interested in the sort of context that the patient was in?

T: In the first year you learn how to do X-rays, so when you go into the department and you have to start doing that, you don't worry about the patient, you worry about how

perfectly you're doing your X-rays, and you're doing that all the time. After having that assignment and our management course and the patient dynamics and all that, after that you really think this patient who's coming in is in pain now, it's not only about the X-rays that he needs, you have to treat him according to what his disease is, and how he feels about it.

Now why do you think that people who write for journals write case studies? What's their purpose? They're not being assessed, they don't need a mark.

N: To find out more information about the disease and help others to find out what it is actually about.

So do you think that when you're out there in the hospitals you're going to look for interesting cases and possibly write a case study?

A: When we see interesting things we always talk about it.

So, now, was writing this case study an important task for you, individually, personally? Was it important?

P: It was important because we know we had to do it, we had to get the mark to qualify to write exams.

But do you think it was a good assignment for the department to get you to write? And do you think the writing of case studies is important in the profession of radiography?

T: Each patient is different. I suppose that's why they write case studies in the first place. If you wrote a case study about somebody with Hodgkinson's Disease, and I wrote a case study about another person with Hodgkinson's Disease, they're not going to be the same. Maybe the disease and the details about the disease would be the same, but that patient's clinical symptoms are not the same, and the emotional trauma or physical trauma may not be the same as the other patient, so I think in different ways you are writing about different aspects and different ways that these patients are dealing with the disease.

What was your attitude towards your patient in the hospital, as compared with when you wrote about him or her?

P: I don't know. I had a baby so I couldn't talk.

T: I never spoke to my patient because of the limited time we had, but I think that writing about a patient sets you apart because you never spoke to that person. Out of the files and notes you can see the person had those symptoms, but sitting and writing down then handing in the project, because I never spoke to that patient, I didn't have the interest to go back and find out how the patient was doing afterwards, because I never spoke to that patient. It was just a patient that I wrote about, not spoke to.

But now you spoke to your patient?

D: Ja.

So how did you feel when you had to write about that person?

D: When you talk to the patient, you're more sensitive, I don't want to ask like too difficult questions and very sensitive questions and all that. When you write, you just write, because the patient's not there, so you can write, you're just writing down whatever you want to write down.

A: I at least got the chance to meet the mother of the child and I asked permission if I can use the child and everything, but for some reason I didn't go into detail about this, I just asked her if I can use her case, and that the names are not going to be used and all that, and that I need to use some of the documents in the folder and all that, and she understood and everything, but I never went back and really talked to her, and afterwards, when I finished the assignment, when we went back, I actually saw her again at the hospital with her son, and I just thought…I knew them but I couldn't talk to them, I smiled and greeted them but I couldn't say, like, how are you, because I didn't do that before.

Now what difference would there be, do you think, between your experience in the hospital and then writing, if you were a qualified radiographer wanting to write to publish something in a journal?

A: I think I will have more of an idea what is expected from a case study and now I'll definitely talk to the patient. It is going to be a bit easier to do that.

So do you think that the most interesting part of the case studies was the actual involvement with the patient, or what you've learned about the pathology or the symptoms?

T: The pathology and the symptoms…we were doing that anyway as part of our pathology syllabus, so doing Hodgkinson's Disease, I knew what the disease was about, it's just that you had to look for more detail, which is not really…that's boring, taking a textbook and just writing it again, but I think it's more about finding out about that patient, that certain patient, how he's coping with that disease.
So then was writing a case study more interesting than some of the other writing you did, because of that personal involvement?

All: Ja.
If you think about what the purposes of communication might be, sometimes it's to get information, or to give information, sometimes it persuades somebody to think differently or to do something that they wouldn't otherwise have done. What about a case study? Does it do any of those things? Does it give information, a case study?

All: Yes.

T: Yes, definitely.
What about persuading someone to a different point of view? Do you think that's part of a case study?

P: I think so, because different people have different concepts about things.
So your audience, you would be persuading them to understand something or think about something in a different way?

P: Different way, ja.
And what about telling the reader anything about yourself, or your attitudes, or whatever, do you think a case study does that?

T: I think so.
What sort of thing?

T: I think you can tell how involved you get with your patient. I mean, Crystal wrote an assignment, in most of the assignment mine was probably more about the disease, hers was more about the patient, and they could see that she was more interested in what the patient was feeling and I was more interested in the disease of the patient.
Now did you get criticism on that count?

T: No, I didn't, I'm just…so I'm sure from there you can tell what type of person was doing the case study.
Would you agree?

P: Ja.
You've told me how you learned about the patient, it's from speaking to them, from looking at their notes, speaking to the doctor. Did the doctor tell you about the patient as well as about the disease?

N: The disease, and he mentioned the condition of the patient, how the patient came to be in the hospital, and just what they wrote in the file about how they want to treat the patient.
So he basically explained what he had written in the file.

N: And how long the patient had been in hospital. As you read through the books, you actually kind of think what he told you, and people write in the journals, in the books or whatever, to educate the patient, what symptoms a patient would be having. In my case the patient would have been paralysed from the hips down, he would be incontinent and all that, and the operation which they would have to do, that's actually what the doctor also mentioned.
So those are the kinds of things that you have to put across in a case study, then, the condition of the patient, and the symptoms…

N: And the treatment as well.
What response did you get from the lecturer to your case studies? What sort of feedback did she give you?

P: Okay, I wrote about something we already did in pathology. She said it was not interesting, it was a common thing.

A: I remember getting [the lecturer] in the passage when we were standing outside together, I saw her and she said, you guys wrote such nice assignments and everything, and we couldn't understand, because we really rushed three days before the due date to get it done, and I think we basically scored our marks for the format and looking at that rubric and everything.

T: Ja, seeing how she wanted the assignment, putting it together according to that. Because we really didn't do much input, we really didn't. To get such good marks, well, we thought it was good marks, was shocking.
How did you know what the structure of a case study is? Did you have a chance to look at other people's case studies?

T: No. She gave it to us. She told us what she wanted first, how to put our introduction, what it should entail, what the conclusion should entail, where to put it, how to lay out our assignment. She even gave us the font size, she gave us practically everything. Now what about the rest of you? What sort of response did you get to your case study? Do you remember what sort of response you got?

N: Not really, no.

D: I think she just said it was a big cyst and all that, but there wasn't a lot of information in the books, there's not too much information.

J: I can't really remember for myself. She just wrote a comment.
But was she happy with what you had done?

J: Ja. She did write there, I did learn, tell her something she didn't know about the disease.
Now, did the responses tell you anything about how radiographers write? What did you learn from doing this assignment?

A: I didn't know about the disease of my patient. My patient had a Wilm's tumour and I really didn't know about that. I was lucky, I went with the radiographer to do rounds, and the doctors were going from patient to patient and when they got to my patient they were discussing the disease, suggesting treatment and stuff like that. So that's how I found out more. I didn't really know. I just heard this name Wilm's and then I thought, okay, I think I'm going to do that.

T: I think from the radiographic point of view as well. Most of our patients had to have X-rays. You couldn't do a patient without X-rays, well, you could, but it would be better to do a patient with X-rays. And most of them didn't have, like my patient, a cancer patient, you get X-rays but it's mostly radiotherapy, and that's a different part of radiography and radiology, you know. And it really makes you understand, because, I mean you spend time at radiotherapy and you see the patient come in for treatment, out for treatment, in for treatment, out. And by doing that case study you actually realize why that patient's getting that radiation, how many times a week and why, and it makes you see the different…like even ultrasound, you get to learn how to look at those pictures, I didn't look at an ultrasound picture properly to determine what's on that thing, but you have to look at the patient's ultrasound and see what the patient and how it looked, so from different aspects of radiography you can see different things.

Discussion becomes general.

INTERVIEW 3
Students: F, H, R, E, G

All right, think back to when you were at school. What kind of writing did you do at school?
F: At school, it was compositions. You just do compositions.
Like for English?
F: Yes, just for English, and Xhosa and Afrikaans.
R: And projects.
And you wrote projects? For what sort of subjects?
R: English.
F: In my school we just did it for English, Afrikaans and Xhosa.
R: Science and Biology, we did projects for that.
Is that more like how you write in radiography, or not?
R: Not really. I can't really remember 'cause it was too long ago.
So what kind of writing have you done since you've been at the Technikon, then? Was it different from school writing? What kind of things did they make you write in the first year and in the second year?
F: It was very different, because you had to…first of all you had to type, you had to know the way to type the things, the APA style, the bibliography.
Now when you did projects and things for Biology and for Science, did you have to do bibliographies?
R: I think…ja, I did.
Okay. But most of you haven't had an experience like that. So can you remember your first assignment when you came here as students?
G: The imaging assignment.
What did you have to do for that?
R: And we had to do…oh, the physiology assignment.
Okay, what sort of thing did they ask you to do for those assignments?
R: We had to do posters.
And how did you know how to write when you got to the Technikon? This is now different from your creative writing. How did you know what to do?
F: We didn't know.
So what did you do?
F: We asked professor…I think we asked what she expected of us. She sort of explained to us, but I think we…most of us got not everything right, just the way she wanted us to. But as we went on, you know, then we got used to the idea of writing things. It was difficult at first, writing assignments.
Was that because you didn't know what to expect? You didn't know what they expected?
F: What they expected.
So have you learned a lot as you've gone along, through these couple of years?
G: We're still learning.
So what do you think you found the most difficult of all the writing tasks? If you can think back over the last two years, what were the most difficult writing tasks you had to do at the Technikon?
H: Difficult? Management.
Management? The management assignment? Why was that difficult?
H: We didn't know what she wanted us to do, and when we asked her, she sort of explained, but still…
F: She said just give me what you have, you know, your idea of a department. She didn't quite say, this is what I expect, so you had to think for yourself.
So did she tell sort of what she expected in terms of content, did she tell you how to set it out, how to organise the writing?
F: No.
R: She just gave us the topic. It's very difficult if she didn't say what she wanted.
Which writing task did you like the best in your course?
F: It was the HIV project. Because we didn't have…it wasn't quite a set project, that you had to do this and this. You just had to open your mind, you know, explore the whole thing.

So you could choose any topic?

F: No, it was just HIV, so you had to, you know, structure the whole thing yourself and just get your mind open and do anything about it, you know. It's quite interesting 'cause HIV is a problem for everybody. And it's interesting for you as well to sort of write something about it.

Now before you came to the Technikon, you had never written a case study before. So did you know how to write a case study?

F: No.

Do you know now how to write a case study?

F: At least we've got an idea now, because we've been through it.

So how did you find out what to do? How did you go about finding out how to write a case study?

R: Well, [the lecturer] sort of told us what to do.

Did she tell you what a case study looks like, how it's organised, what it's about? What sort of things did she tell you?

F: I don't think she told us what it looks like, or…she just said we must find a patient and just tell us about the patient and the disease, that sort of stuff.

Where did you get the information from?

F: Where I got the information…for me, I did a cancer patient, so I got the information from files, patient files, radiotherapy, and books and journals and the Internet, those were my sources.

Where did you get hold of all those sources?

F: Internet at the hospital and books at the hospital library.

Which hospital were you at?

F: Frere Hospital.

Frere, okay. And you?

G: Also Frere.

And you?

H: I didn't get information from Provincial because there were only old books there and she said she only wants books from 1990.

So what did you do?

H: I came to Technikon, I tried on Internet, there was no information there about achalasia, so I went to Livingstone library, I got some two books there, and I went to tell her that I haven't got enough information, because most of the information is in those books which are old. And she said that I can use that old information because she thinks that they are still using those procedures when they're trying to…

F: And I think that's another difficult thing, you know, that we have to find new books, you know, it's difficult, because all the time you get books from seventy something, eighty something, and you can't use those books because you must use only recent books.

Why do you think they ask you to use only recent books?

F: Because things change all the time.

So in other words it's actually quite important that your research should be up to date. Which hospitals were you at?

R: Provincial.

E: Livingstone.

I hear the library at Livingstone is good.

E: Yes, it is.

So what you've learned about writing a case study was basically just from doing it? Did you see any case studies that anybody else had written?

F: No.

So what makes a case study different then from other types of writing?

F: I think for me, if you're writing an assignment, if they tell you to write an assignment, they will say write an assignment on maybe achalasia, but if it's a case study that you have to do, you go out there and get a case, you just look for something interesting, you know, you don't have to…and you get your patient information, you get all this…you talk about a particular person, something that's happened to a particular person, you don't generalise on the disease, you know, throughout the whole thing.

Not throughout, but do you generalise in a case study at all?

F: In a case study you talk about the patient and then you say more about the disease, you get information from the books and everything, about the disease.

So there is a general part, and then there's a specific part about a specific case? And did [the lecturer] explain that to you, when she said that you're going to write a case study?

F: No.

You knew that you had to find a patient though, and you knew you had to get information about the patient's disease? Okay. So is there any other way that it's different from any other writing? Was it more difficult than other assignments? Was it easier than other assignments?

F: I think it was easier.

What made it easier?

F: The fact that you get a patient, then you talk to the patient, then you've got a disease, and the patient will tell you the story, what happened to me, and that gives you a few pages. And then you get to the book, you don't have to say an awful lot about it. You talk about your patient, you talk about the patient's condition, the background and everything, and then you say something about the disease, and then you just conclude on the whole thing.

Did you all speak to your patient, all of you? How did you choose your patient?

R: The doctors tell us. When I was in the hospital, I asked them, you know, if they get something that is unusual, they must just tell me, something that's rare, 'cause [the lecturer] said she specifically wanted a thing that is not so common. So I asked.

What about the rest of you, how did you find your patient?

E: No, I didn't get something that was rare, I got a common disease because there were no interesting things.

H: I saw my patient when I was working. The doctor was not sure what was going on with the patient, when we saw the pictures there was something on his chest and we didn't know what it is, but when the prints came out we went and asked from the doctor, what's that, and then she said she thinks that it's achalasia, and we didn't even know what's achalasia, we had to go to the dictionary and we saw what it is. She said she thought…the doctor said that she thinks it was that….. She was giving the patient something to drink, and she saw that the barium could not go through to the stomach, it was just sitting up there, and there was a white thing in the chest of that patient, that's how I…

So that was interesting, so you were actually there when this was all happening?

H: Yes.

Now what do you think [the lecturer] was looking for in the case study?

R: The way you present it, you know, the way you organise the whole thing.

And structure the writing, or do you mean the typing and the spacing and that sort of thing?

F: No, not that, but your presentation of the whole thing, your layout, how you present this disease, you know, is it properly, things like that.

How did you know what she wanted to look for? Did she actually tell you before you started writing the case study?

F: I just wrote! I don't remember her telling us, you know, write like this, do this, do that, you know, you can't do this, you can't do that. I think we just decided on our own what to do.

And then you did it the way you wanted to do it?

R: But she told us about the APA style, that's one thing that she did.

H: And she told us about fonts, and that if you've got an introduction which is about half a page, she doesn't want you to leave that space and start on the right, that's all what she explained.

Do you think those things are important?

F: If you're talking about appearance and all that, they are important.

R: I don't know why it's important.

So what was the most helpful thing to you in writing the case study?

G: Books.

The books that you read?

G: Comparing the books to the patient's history and all that stuff, they could like say the same thing.

So you could actually say in general terms about the disease, and you could actually see it in the patient. What about the rest of you? What was the most helpful thing to you in writing the case study?

E: The doctor helped me.

Did you ask the doctor? And he or she spoke to you about the patient and the disease?

E: And the treatment and everything.

So did the doctor help you as well?

R: Yes.

And the rest?

F: Yes, the doctor, and the radiotherapy people also helped.

Did you look at other case studies as well? Did you get hold of anybody's case studies or any published case studies to see what a case study looks like?

F: No.

Would you be able to find case studies anywhere?

F: In medical journals you get case studies.

Have you seen them?

F: Yes, I've seen them, but not really of interest to read, maybe I'm just passing and I see a case study.

Do radiographers write case studies?

G: Yes.

Where?

G: There was one published in the Society of Radiographers magazine.

Do you read that magazine?

G: Yes.

And you've found case studies in there?

G: Yes.

So before you wrote your case study you'd seen a case study?

G: Yes, I've seen it, but it was too short.

It was shorter than the one you had to write? Why? Why were they different from your case studies, do you think?

F: Cause they are not for marking, just for interest's sake.

Why do your lecturers want you to write them? Is there a purpose, do you think, of expecting you to write ten pages rather than two pages?

F: Well, for me, I don't see why you have to write ten pages. Because if you can get information in five pages, why not, if it's good information? Why can't you get it in five pages, or four pages?

When you wrote your case study, who did you write it for?

F: [The lecturer].

She was your audience…nobody else read your case study?

R: Except for you of course.

You didn't know that then. You didn't know that I was going to read your case studies. What sort of relationship did you have with your audience, [the lecturer], when you sat down to write?

F: You just have to know that you're writing for [the lecturer] and she knows a lot about everything.

Do you think she learned anything from what you wrote?

F: Well, definitely.

R: I think she did, because she can't know everything, so she must have learned some interesting new stuff.

F: And different things, so she can't know all about everything. It's interesting if she reads about those things, it's different from what you've had, you know.

Did she comment that she'd learned anything from them?

R: She didn't, but I'm sure she did, she must have learned something.

You may want to write another case study one day. If you're sitting down and you want to write a case study for a journal, would you know how to do it?

F: We will get help.

From?

F: Doctors.

G: Other staff who have done it.

When you wrote this case study, you wrote for [the lecturer]. Who are you going to write for when you're a radiographer? Who will your audience be? Who's going to read your case studies?

R: Radiographers.

F: People in the profession.

What differences will there be when you write as a professional?

F: Definitely, because [the lecturer], she is our lecturer, now you're writing to people you've never seen, you just write and you don't know who's going to read.

Will that make a difference to the way you write?

F: Sure.

What sort of difference?

R: You don't know how much they know.

F: You must also write for yourself.

So let's just take up this one thing first. You don't know how much they know.

R: They could be experts in this thing that you're writing about, so you should get as much information as possible.

Okay, and you were saying?

F: You must write for yourself as well, because if you're writing, you mustn't just write if you're not interested in it. If you're interested in things…

And what about your audience? Should you try and interest them as well?

F: Yes, definitely.

So what will that make you do in your writing, if you want to interest your audience? What sort of things would they like to read in case studies? Different from what you wrote for [the lecturer], or the same kinds of case?

F: Well, for me it was just interesting, for me the whole thing was just interesting.

So then it will be the same thing, if you want to interest any audience, you'll just find something that's interesting to you. And I think somebody mentioned unusual, the cases must be a little bit different, not just the ordinary thing. Now [the lecturer], do you think she knew a lot? Did you have to be very careful about your information for her?

G: Yes.

So it was very similar, then, your experience writing a case study for [the lecturer] was very similar to what you will do when you write for publication?

F: Ja.

Do you think there will be any differences at all?

R: It will be shorter, probably. You won't write ten pages.

Why not?

F: Because nobody's going to mark you. You're not supposed to get marks.

So that would be one reason for making it shorter.

R: And if it's long, you don't feel like reading something that's very long, if you just…and the magazine is only that big.

Okay, so you're limited because they're not going to give you so much space and also because people want something short and interesting … Now you say you'd get lots of help from other people who've written case studies. Would you find other people working with you who'd written case studies, do you think?

F: Maybe. I don't know.

You didn't ask anybody in your hospitals whether anybody had written a case study? You didn't know of anybody who had?

R: We sort of tried to, but, you know…third years from last year, but we couldn't find anybody with a case study. I couldn't find anybody.

So you were actually looking for students who had written?

R: Ja.

But you don't know of anybody who had written a case study? When you said, I've got to write a case study, nobody said to you, I've written a case study and had it published?

F: They said, oh, we did that years ago, can't remember it.

What sort of background knowledge did you have when you wrote this assignment? Could I write a case study? Do I have the background?

F: Maybe if you have the medical background, it will be interesting, I think, you know.

So in other words it's a medical background. But what background do you have to write the case study? What you've learned, studied?

F: In pathology. You get this thing and you know what it means. Sometimes you don't, but it's interesting anyway.
Do you think you share that background with your audience, [the lecturer]? She has the same background as you?
All: Yes.
The same level of background as you?
All: No.
So she's more expert than you are? What about professional radiographers? When people who are in the field and have been in the field for a long time write a case study? Do you think they have the same background knowledge? Are they more expert, less expert? What do you think?
R: I think they are more expert.
Why?
F: Because they have got experience in the field. They've been around and seen things that we haven't seen.
So it's different then as a student, it's more difficult, is that what you're telling me, that it's more difficult as a student to write a case study, because you haven't had that experience?
F: I think it's just different, not difficult.
Okay, different in what way?
F: I think it's just different because you haven't been in the field for a very long time, you're just there for a few months and then back to school, you just learn the things, but when you're working when you're qualified, you see different things maybe, every day you get a different case, you know, which gives you more interest in writing about something that's happening.
Did you ever think that anybody would want to publish your case study, when you wrote it?
F: No.
Some students have had their case studies published. Did you know that?
G: Yes.
Did they tell you in the department?
G: They published one in the Society of Radiographers.
Was it important to you, writing this case study, or was it just another assignment?
F: It was just like one of those things. You just know you have to do it to get the marks. But I think we just got interested because, you know, you get different cases and you must choose between this one and that one, and that gets you interested, and the stories the patients tell you, that's interesting.
Are case studies important in the profession of radiography? If nobody ever wrote another case study, would it matter for radiography? What do you think?
F: Just to…just for interest's sake. Just to give you more knowledge. Maybe something you haven't seen, if it's published in a journal, and you read up about it, and you ever get a thing, you know, you probably get more interested in finding out more about the disease, and maybe you get a case like that and you see a patient with the same thing and then you know, I read about this disease.
So are you telling me that it's important in radiography for people to communicate with each other so that other radiographers can learn more?
F: Yes, continuing professional development.
Now, what was your attitude towards your patient in the hospital, and was it any different when you wrote about that patient?
F: Well, I just felt sorry for her throughout the whole thing, because that woman was blind, she was blind because of the thing, you know, and I had to get water for her…because it's also painful, you know, because it gets so personal.
So when you were actually interviewing the patient, you feel personally involved.
F: That's what gets you interested, you get interested in it and you write about it in your case study…you know, you're so involved in this thing now.
Now what happens when you write about that patient, do you still feel like that? Can you write personally about that patient?
F: Yes, that's what gives you the drive, because you just write.

Do you all agree with that, that it is quite a personal thing when you write about a patient? What about professional radiographers, when they write case studies, do you think they become personally involved with their patients?

F: I think they should really, because they should have some touch with people.
So would you say that what was most interesting was the patient, rather than the disease, when you wrote the case study?

R: You can't help the patient who is suffering.

F: It also made me feel guilty because when I spoke to the patient, I'd speak to her and I'd feel here's somebody so young and she's blind, she's got three children and they are young, still at school, and she's poor, she can't work for them. You feel like…if there was only something you can do for her, you know, you can't help but wish there's something you can do, but there's nothing you can do.
What do you think is the most important purpose of a case study? Is it the patient and how you feel about the patient, how to communicate that? Is it trying to persuade people to feel compassion? Is it giving information about diseases and the particular patient?

F: I think it's to give information about the disease, because there's nothing you can do for a patient, you just hear the story and you write it down, there's nothing you can do for them.

R: Some people just think about their own little lives now, you know, they must think further than that, because if you haven't seen something like that obviously you won't, but if you read that you know that there's more to life than your own little world.
Would that be the purpose of writing a case study for a radiographer?

F: It could also be just to expand your knowledge, and for your patient as well, because when you talk to your patient, you talk about the disease and what happened to them…you know, that also helps the patient, because my patient, you know, she just couldn't…
It sounds to me as if there's a tension, in one way there you are as a person wanting to care and be helpful, but in another way, there you are looking at this person as an example of a disease or a pathology or whatever. Did you find it hard to write a case study because you had feel these two different things?

F: No, it wasn't like that. It's just a general sense, because you know there's nothing you can do for the patient, and the patient kept asking me, can you help me, you know, so why are you here again, or something, and I say, no, I'm just writing, just writing and doing nothing else but writing. It makes me feel guilty, because they're thinking who I am and why is someone writing about me. So it was also difficult.
So do you think that when you wrote you managed to convey to your reader, to [the lecturer], how you felt about the patient, or did you think you had to not tell her how you felt about her and just talk about the facts?

F: I don't think I told her how I felt. I just wrote about the facts.
What about the rest of you? Did you write about how you felt? Or did you just write the facts?

H: I showed her how I felt, because my patient died.
That must have been difficult. Did you spend much time with the patient?

H: Yes.
So was that quite hard?... Now when you got your case study back, were you happy with the feedback, with the response? Were you pleased? Did you feel you had achieved something?

F: You never really feel that, because you put so much effort into these things and when you get your marks, you think… (tape cuts off)

INTERVIEW 4
Lecturer: L

I just need slightly richer context where the writing is important. It seems to me that it is. Why is it important, what writing do you ask them to do and why you ask the students to do the particular kinds of writing you do?

L: Yes, I do believe that writing is important. I think its really one of the outcomes you would expect for the student having gone through a course of tertiary education. So they must be literate, they must be able to communicate in an understandable way. I think it's integral to higher education the types of writing that we give them. Obviously it's going to vary from year to year and subject to subject. The reason why I give the 2nd years the case study… the subject they are writing for is radiographic pathology so its an ideal opportunity for them to not only research about particular pathology but also then to investigate and learn all about the patient as a person, as a family member, as a social unit or what have you, instead of the patient merely being a person who goes into the department and goes out again. So they have to be involved with their patients.

Ok and then with regard to other types of writing I know you have the research article. That will be with your BTechs?

L: Yes, it does vary from year to year. What we do with the BTechs is obviously at a higher level. We expect more of them and we have got a variety of subjects in the BTech year as well. For one, my module, they have to write an article that is suitable and of a standard that could be published. It could be a case study. It could be anything else that they want to write about of interest.

And what's the success rate in terms of reaching a standard to be publishable?

L: This year out of 5, 2 were publishable with minor alterations, an additional one with quite a few alterations. The previous a BTech, I can't remember the total number of students, maybe about 15 and out of that about 4 or 5, 2 of which were published

Y*ou're talking about standard of publishability but this also implies finding exactly the right sort of case study?*

L: With the case study they have to select a suitable, as you say, a suitable case because it has to be obviously something that is quite rare or extremely interesting. It can't be just another case of tuberculosis or whatever, you know, its got to be something that people are going to be interested in. The second year students' case study…I don't set standards in terms of who they choose but obviously it must also be a patient that is interesting but obviously there's more leeway, they don't have to think they're going to be publishing this.

But they are told to choose an interesting pathology or a particularly interesting case?

L: And they have to run it by me before they actually go ahead with it because sometimes they're not suitable.

Something that came out of the interviews with the students, some of them were aware of continuing professional development and said how once they were in the hospitals one way to score points would be by publishing. Is that something you make them aware of? Is that a sort of a motivation also for doing the case studies?

L: No, I think that that was just circumstantial that they picked that up. Its not really the main aim in the second year case study. It's certainly one of the aims of the B Tech because we are breeding let's say a professional and although you can say that of the National Diploma, you obviously expect far more of that from the BTech, so yes the BTech are…that's one of the outcomes that they're awareness of what professional is but not the National Diploma no.

The instructions that you gave the students, would you have given them anything over and above the handouts?

L: I do. The handout that I give and the rubric study guide. But also we do talk about it in class because sometimes there are things that come up which are not on the instruction sheet and the other thing is that students don't pay attention to what's on their instruction sheet, so you can go to all the trouble of doing guidelines and rubrics for them but in the end they don't seem to remember, so we have probably 2 or 3 discussions in class, particularly when it comes to the technical aspects of writing and going over APA and how to set an assignment out.

And, something about the structure, the expected structure of the case study?

L: I don't bind them but I do give them a suggestion of how they should go about it. That one half should be devoted to the actual pathology itself where they've got to do the research and write it up and the other half would be the clinical side…

Of this particular patient?

L: Of that particular patient and what I expect them to report

And in terms of length, do you have a prescribed length?

L: No I don't prescribe, I say about 10 pages and that would include the contents page, the references, one and a half lines spacing.

And visuals? Because in professional case studies every case study seems to be illustrated?

L: They are. What they have to do is they have to submit at the same time all the radiographs

So they are not actually included in the case study?

L: No.

But they are submitted as documentary evidence…

L: As an addendum.

…that it was with a genuine patient?

L: Oh yes, they have to, all of them.

So do they get those easily from the hospitals?

L: Oh yes. You see we can duplicate the films we have got, we buy duplicating films, so they normally ask the lecturers to select the best or they ask for the best films to be duplicated and sometimes they actually get the originals.

Is it ever suggested to them that they read case studies in the library as a way of seeing what a case study is and how it might be written?

L: I do say it would be a good idea to go and read some of the journals but I don't make it mandatory. It's up to them and the other thing that I do is that really good case studies from past students I make a copy of and I hand those round and say have a look at this and…. In fact what I really should do is do a good one and a bad one but I tend to forget the bad ones and concentrate on the good ones

What were you expecting them to achieve. In other words, what did you hope for a successful case study?

L: Well I suppose the primary objective is to become involved with the patient. That, I think, is probably number one and then to write up that case study in a clear logical, understandable manner, using correct formal academic language, setting everything out so that is flows and is logical and the beginning is at the beginning and not in the middle, that what they do write is to the point and they don't include thing just to bulk to the 10 pages. I suppose that's it, I can probably think of a few things besides.

How do you judge whether a student has actually got involved with the patient?

L: That's quite an interesting question and I don't know how I can answer it in a concrete way. It's probably the one time where I say you can use the 1st person. You know: I went to the patient's house and I talked to the mother and father; and you can actually see, a student that has had minimal contact won't write about it because there is nothing to write about. But the student that has taken the trouble to talk to the patient, to talk to the family… I've had students going to the house, I've had students haul the patient to Cape Town and you can see that because they actually want to talk about it.

Do you feel that radiographers in the profession as part of their professional identity…there isn't this sense of caring...?

L: Patients come in and there isn't the time for radiographer to have conversation, get to know them and know even just an inkling of what they are going through, because there isn't the time, and I don't think it's really our fault so it's to counter that lack of close contact, to give them the opportunity to have that.

Which they perhaps won't have in their professional careers?

L: Particularly in diagnostics. In radiotherapy it's a different thing altogether because that radiographer sees the patient for however many treatments and gets to know them and talks to them on a daily basis. I wouldn't say that our student radiographers are uncaring, it's just that they don't have the opportunity because of the time factor and this gives them that opportunity.

In terms of achieving a written product, have they ever done similar tasks? Are you asking them to do something that's very different from what they've done before?

L: No, it is different. In fact, in first year they didn't have any written assignments, which is something we're changing now. All subjects, all years are going to have a written assignment as from next year

So this was quite large-scale, important, new, difficult piece of work as far as they were concerned. What is it that they have to do to achieve success?

L: Number one, they have to submit it on time, which seems a silly thing but etiquette is a fact. They have to show that they have researched it and that they have all the appropriate information about the disease. One of the problems is that they cannot synthesize other people's ideas, they just merely just go 12345 instead of looking at it all together and saying ok from all this we can say that. And then they have obviously got to be able to write the whole lot in English that is understandable and that is the big problem. It has to be done using IT. Sometimes they do it themselves, sometimes they get other people to do it…and it's something that they've got to plan throughout the year, so we talk about it in the beginning of the year and they hand it in in September. They have 8 months to do it but they always leave it to the last minute. And the other thing that I'm going to build in and make compulsory, I've done it before on a voluntary basis, and that is that they must submit a draft so that I can check it just to see that they are on the right track.

To what extent are you wanting them to reflect in the structure the case study that one finds in a radiography journal? Did you specify that sort of order?

L: I don't specify the order but in one of our discussions I do say there's got to be an introduction, and then, as I've indicated, we then talk about the patient and the clinical situation and then we follow that on with your research from the library

Which would reflect a professional case study structure?

L: Yes. But its not intentional, put it like that, its not intentional, it just makes sense.

How can they learn to do these things successfully?

L: Well, I think they can learn by looking at case studies. I've indicated that I've given them a good one. I think they can learn if they bring me a draft. I think the writing centre can also help them. I suppose it's by trial and error that they are going to learn

Who are they writing for?

L: Well, that's relatively easy. They're writing for themselves and they're writing for me. They're not writing for a journal so they're not writing for an intended audience. I see it as being formative.

Formative? In terms of?

L: In terms of assisting them to develop their writing skills, their skills in retrieving information, those kind of skills rather than an end in itself. I don't see it as an end in itself, so for me it's for the student and also for me, but maybe the BTech is different because the intended audience there very definitely is the reader of a professional journal.

So what sort of differences do you then see in the BTech writing and the second years'?

L: Well, I think that the expectation is that the BTech writing has got to be of a far higher standard, number one, because if the intention is to publish then obviously your standards have got to be far higher. You can't expect the same standards from a second year who has not had any writing experience. So that's why I say really I think it is formative, plus there's the non-academic side which is the getting involved with the patient, the clinical side of it.

So the actually pathologies that they choose, would these be things that they would have covered in the course or not necessarily?

L: Not necessarily. In fact I quite like it if it's something that we don't do, because we don't cover everything by any means. We tend to cover pathology that is appropriate to radiography. So it's wonderful if they can find something. I remember a couple of years back one of the students found a patient suffering from Creutzfeldt-Jakob, which is that mad cow disease, who was in Provincial Hospital for a very long time. I mean that's nothing to do with radiography but it's wonderful that she found such an unusual case. A patient once did a study on a patient with leprosy - nothing to do with radiography. In fact one of the thing that I mark them on is the, degree of interest of the case study. If they pick somebody with another case of pulmonary TB I'm going to give them 0, almost. But if they find something really interesting then they're going to get 10. So yes, I actually encourage them because usually what they do is pick the first

patient that walks through the front door, doesn't matter whether it's interesting or not, because their time management is usually such that they're desperate at the end. So to me, if they can take the time and the effort to find an interesting case then they must be rewarded.

If you're writing a case study or a research article, you are writing for a wider professional audience. How would the writing be different from what a student does? How would you expect their writing to be different?

L: I don't know that it's really different. It really is to do with the standards.

You mean standards in terms of grammatical writing, clarity of expression…

L: Yes, very definitely. Because the second years, obviously they are inexperienced with writing whereas a BTech is somebody usually who has been around for a bit. They don't follow on the BTech straight after their national diploma, so they have had a bit of experience but I think the mere fact that you're writing for a journal, I think it's really the standards of language that is the big difference.

And in terms of the collection of the material? Would there be more rigour in how you would select what would be interesting to your professional audience?

L: Absolutely, there's no doubt about it. They've got to be able to select what's important and omit that which is not important but at second year level that isn't so important but if you're writing for a journal you've got to be far more rigorous. And also in how they express themselves, the language that they choose is far more rigorous at BTech level. And I think this is one of the problems because they're not used to using that language. And that the language has got to be far more technical…because your audience is on the same professional level as you are.

With the second year students, are you wanting to see some degree of competence with using technical language, with sounding like a radiographer?

L: Absolutely yes.

And that would be more that using technical terms, would you say?

L: I would like to see the development of an academic style, but at second year level it's a bit embryonic, whereas I would very definitely expect it of BTech level

What do you usually have to do to assist a student to prepare a case study for publication?

L: Well, I would assess it for readiness for publication. Those that I can see clearly need to be rectified I'll say to the student ok, I think you should do this, you should do that, do the other and then if they want to submit it, because its not mandatory, its up to them. Then of course the editor has got the right to come back and say I want this changed this changed and this changed.

What sort of things do you find students have to change?

L: The length of the article, and we're talking BTech here, trying to keep them to restrict the length. They think they can produce 15 pages but a journal article is not 15 pages, particularly a case study, so that is one thing that very often needs to be attended to and again I would say that the ones that need a lot of attention, it's perhaps because they're not logical and their English is still a little bit on the wonky side. But generally speaking the ones that really are suitable do not need much in the way of changing. The two that I've had this year, they could be submitted virtually as is.

What makes a case study different from other types of writing that the students do? Is it just the structure?

L: It's the structure. I think it's easier when you've got a topic that you know what you're writing on. It's straightforward. It's a report and I think that in itself makes it easier. You don't have to reach conclusions because there are no conclusions to be reached. It is a factual report on a patient.

Now in a research article would you be expecting students to produce an argument?

L: Not necessarily even that. If you're talking about a journal article, you could write on anything relevant to radiography from the impact of new legislation, for example, or something you are particularly interested in.

It would have to be some original thought, some original conclusion?

L: And also pitching it at the right level and normally that is when they tend to bomb out because they either want to write on something that even a first year radiographer knows about or they go the opposite and their pie in the sky dreams for radiography, whereas a case study is very concrete and much easier to write about. A pure case study is simply, really a report of something interesting.

How do the students learn about the patients they describe?

L: Well, they would obviously have to interview the patient themselves, maybe more than one interview; interviews with the doctor. In fact, they have to do that because they have to get permission to investigate the patient. They would also learn by obviously going to the library; we encourage use of the net. In fact, I'm actually going to build that in future. That they must do a net search to see what they can come up with, you know as part of IT literacy. I think that would be the main way.

Are the medical personnel at the hospital quite helpful and supportive to the students generally?

L: I think there are obviously good ones and bad ones. Sometimes the doctors are very helpful. I think it depends on whether they catch them on a busy day or not and very often they will go and actually make an appointment and go and talk and that becomes very important when they choose a very obscure disease because sometimes the disease is so obscure that there's very little information in the books and they'll get it more from the doctors, who can tell them more about it.

Some of the students obviously were distressed. You could see this in what they had to say in their interview and in the way they wrote about the condition of their patients of the prognosis and this sort of thing. Do you find that you have to do anything in the way of counselling, assisting students with coping with those kinds of situation?

L: Thus far, no. I've never had a student being that upset because I think its part of being a health professional. You've got to learn to cope. But I think it's good. In fact, if anything it's formative because it's opening their eyes to something they wouldn't otherwise even have maybe an inkling of. I think it's actually quite interesting because one could have some kind of discussion with them and get feedback about how they coped or how they found the whole process with in general.

So it's not been an issue?

L: No, because they do see some pretty awful things anyway, and the whole idea of the case study is that they do get involved. But no, even when patients have died, it hasn't seemed to have been a problem and they do die sometimes.

APPENDIX 5

STUDENT HANDOUT

SECOND YEAR STUDENT CASE STUDY

Learning outcome	Specific outcomes	Content	Source of content	Assessment
The student will present a well researched and documented written case study of a patient with whom he/she has had personal contact in the hospital.	The student will demonstrate:			
	discrimination in choosing a suitable, interesting patient.	Choice of patient	Diagnostic Imaging Department or Radiotherapy	See rubric
	attention to detail regarding the technical aspects of assignment writing.	General appearance, neatness, title page, table of contents, numbering, headings and sub-headings	Writing Assignments- Guidelines	See rubric
	discrimination in selecting appropriate and relevant bibliography or references.	Choice of texts, layout of bibliography and references.	Guide to Documenting Sources APA Style, PE Technikon 1997 Writing Assignments	See rubric
	the ability to write clearly and concisely in English.	Spelling, grammar, sentence construction, punctuation, scientific terminology.	Communication with patient and doctors. Texts consulted. Internet	See rubric
	signs of extensive reading and synthesis of different ideas/facts./opinions.	Texts consulted, integration of different material/facts/opinions and **rewritten in own words.**	Texts consulted, Internet patient interviews, doctor interviews	See rubric
	signs of planning and organisational skills.	Literature survey, data gathering, time management.	Writing Assignments, Word processing software	See rubric
	signs of logical thought.	Gathering of data, identification of important data/ideas, ordering of assignment.	Interviews with patient /doctor/family	See rubric
	attention to detail in the editing of the assignment.	Proofreading, Spell check, Thesaurus, Grammatik.	Texts consulted, doctor interviews, Internet	See rubric
	signs of insight into and interaction with the patient.	Understanding of and empathy with patient.		See rubric
	signs of insight into the specific pathology .	Understanding of pathology		See rubric

SECOND YEAR STUDENT CASE STUDY ASSIGNMENT

Student Name_____

Title of Case Study_____

	V.poor	Poor	Avg.	Good	Exc
	1	2	3	4	5
TECHNICAL ASPECTS					
General presentation: neatness, appearance, script, requirements					
Table of contents & content body :well structured, numbering, headings, sub-headings, correspond with each other					
Bibliography: layout, relevance, current, appropriate, adequate					
References: adequate references made, correctness of method					
	2	4	6	8	10
Editing: proof reading, errors in spelling, grammar that should have been corrected.					
Standard of English: spelling, grammar, understandable, style,					
SUBTOTAL...../40					
CONTENT	1	2	3	4	5
Introduction: introduce topic, serve purpose, supply information of what to expect in assignment, innovative					
Content: evidence of reading, synthesis of ideas/facts/opinions					
Content: structured, logical, to the point					
Content: written in own words, reliance on direct textbook copying					
Content: appropriateness/relevance of content					
Content: clinical aspects covered adequately					
Content: theoretical aspects covered adequately					
Content: figures/tables/other relevant and contributes to understanding					
Evidence of understanding of assignment and case study					
Overall impression and effort					
Choice of patient: interesting, stimulating, unusual	2	4	6	8	10
SUBTOTAL					
SUBTOTALS					
TOTAL %					

Lecturer=s signature_____

Date_____

SUGGESTIONS ON COMPILING THE CASE STUDY

1. Start looking for a suitable patient early, it can take time to find an interesting case. When selecting a patient it is probably better to find a patient who has a fairly definite diagnosis, this makes it easier for you to focus your written work, especially the theoretical part where you have to consult textbooks. Another point, unless you are very confident of your dedication and researching abilities, I would suggest that you stay away from the very obscure/unheard of diseases....the only reason that I say this is that it can be very difficult to find information about such rare conditions. However, if you like a challenge then a rare disease would suit you fine.

2. When you have found a patient, ask the permission of both doctor and patient. You should explain to the patient that you will need to interview him/her, possibly even family members. You must guarantee confidentiality of patient information. In your written work do not give the patient's real name (the patient is fine, or you may like to refer to Mr/Mrs/Miss X).

3. Start planning and organising the assignment as soon as you can. You will have to obtain primary data relating to the patient him/herself by means of interviews with the patient, doctors (if you feel it necessary), the patient's notes and reports, imaging procedures and their reports. What type of data you collect is up to you to decide, but you will use it to compile the part of the assignment that describes the actual patient him/herself.
   One word of advice: do not write a blow-by-blow account of every minute of every day that the patient has been in hospital. Nor should you simply copy out the patient's notes verbatim. You will have to condense the data into a concise, to the point report.

4. You will have to gather information about the disease itself...you may consult textbooks (must be current), journals, the Internet (a very good source of the latest information).
   You should also remember radiological aspects as well, so consult radiology texts. Do not simply copy what the texts say – you should rather put it into your own words and integrate all information into one. You will loose many marks if you merely rewrite the textbook.

5. Please do not forget to read Writing Assignments: Guidelines and Guide to Documenting Sources APA style.

6. Finally....edit, edit, edit and edit again.

7. Make an appointment with me during the first week of next block, so that I can see your first draft.

ASSESSMENT RUBRIC

	Scale - very poor/poor	***Scale - average***	***Scale - good/excellent***
Technical aspects			
General presentation	Very untidy/messy. Typewritten or inappropriate font. Handwritten inserts	Fairly neat, typewritten rather than word processed, dot matrix printer, Correct fonts. Figures not labelled, or labelled incorrectly or labelled in handwriting.	Very neat, attractive presentation, Figures labelled correctly. Nothing labelled by hand. Inkjet/laser printed.
Table of contents and content body	No table of contents, no numbering of headings, incorrect numbering of sub-headings. Headings/numbering on contents page do not match with the body. No page numbering.	Table of contents present but not well structured or displayed or not completely correct.. Some numbering errors present.	Table of contents correct, well structured, numbering and headings match in body.
Bibliography References	Bibliography absent, not laid out according to APA style, Texts outdated. Texts are irrelevant and inappropriate to case study. Not enough texts consulted, Important texts omitted. No references made, reference layout not according to APA style.	Bibliography present, a few errors of layout. Texts not always relevant & appropriate to case study. More texts should have been consulted. Some texts outdated. references present, but more should have been made.	Bibliography present, completely correct. Good/excellent range of texts consulted. All/most offer current knowledge. All/most relevant. Internet used. Good/excellent referencing,
Editing Standard of written English	No /little editing Numerous spelling /grammatical mistakes. No/little use of accepted radiographic/anatomical/pathological terminology. Style and language is not appropriate for the requirements of tertiary education.	Some evidence of editing, but a number of spelling/grammar/typo errors. Some spelling and grammatical mistakes. Some use of accepted terminology. Style sometimes matches standards of tertiary education. Fair sentence construction, but some not possible to understand.	Few/no errors. Very few/no spelling and grammatical mistakes. Good/excellent use of terminology. Style matches tertiary education standards most/all of the time. Good/excellent sentence

	Very poor/poor sentence construction, such that it is not possible to understand what is written , affecting a considerable amount of assignment.		construction such that writing can be understood most/all of the time.
	Scale - very poor/poor	***Scale - average***	***Scale - good/excellent***
Content of assignment			
Introduction	Absent or too brief. Does not introduce case study, or focuses only on one aspect, does not indicate what to expect in the assignment.	Adequate but gives little indication of what to expect in the assignment, not very stimulating , does not encourage the reader to continue.	Gives clear /excellent idea of what is in the assignment, gives an good overview of the patient and the disease. Stimulating, unusual or innovative, makes the reader want to continue.
Content[1]	Poor bibliography, facts merely written down with no evidence of understanding, incorrect statements made, no linking and integration of content, no supportive statements.	Bibliography adequate, few if any incorrect statements, some supportive statements or conclusions drawn, some evidence of integration..	Good/excellent bibliography, no incorrect statements, good/excellent supportive statements/conclusions draw. Most/ all information well integrated..
Content [2]	Assignment shows poor/no organisation. Headings and sub-headings are poorly/not ordered in a logical sequence.	Assignment shows fair organisation. There is an attempt to organise headings , but some of the material could have been better sequenced. . There is not much evidence of theme/focus development.	Assignment well/very well organised, Logical sequencing of headings/sub-headings. The focus/theme of the case study has
Content [3]	The assignment is simply a group of headings and subheadings with little of no evidence of theme/focus development.	Some evidence of synthesising and writing in own words., but assignment still shows some evidence of direct copying out of texts.	been developed/well developed logically and clearly.
Content [4]	Too much direct rewriting of consulted texts.	Most of the content, either written or diagrams, is relevant to the case study.	Little/no evidence of direct copying from textbook..
Content[5]	Too much material (either written or	The most important clinical aspects are covered, but it could have been more comprehensive	Hardly any or no irrelevancies.

Content[6] Evidence of understanding of assignment and particular case study. Choice of patient	diagrams etc) included that is irrelevant to the case study. The clinical aspects of the case study are not covered adequately, and there are many important omissions. The theoretical aspects of the case study are not covered adequately or covered in a very superficial manner. Many important omissions. Work relies solely on description, writing shows little understanding /empathy of patient, little insight into the specific pathology, student tends to accept facts/opinions and offers no additional personal input. Boring/very boring.. Disease is closed and offers no opportunity for research and documentation. Little thought into an interesting patient. Condition very common.	The most important theoretical aspects are covered, but some aspects are covered too superficially. Work is adequate, mostly descriptive but does show some evidence of understanding of patient and the disease. Some personal input. A reasonable choice of patient. Condition offers some opportunity for research and documentation, but the condition is not particularly interesting or unusual. Not particularly stimulating to read.	Good/excellent comprehensive coverage of clinical aspects. Good/excellent comprehensive coverage of theoretical aspects. Although descriptive, work shows good/excellent understanding /perception of both patient and disease. Good/excellent constructive evaluation of both patient and disease. A good/excellent choice of patient. Either an unusual or very unusual disease, or the student develops written work in such a way as to present it in a very stimulating and interesting way. Rare disease requiring considerable researching.

APPENDIX 6

INTERACTIVE METADISCOURSE FUNCTIONS PER MOVE IN PROFESSIONAL AND STUDENT CASE REPORTS

MOVES	TOTAL NUMBER OF WORDS IN MOVE		TRANSITION MARKERS				FRAME MARKERS				ENDOPHORIC MARKERS				CODE GLOSSES			
	PROFESSIONAL	STUDENT	PROFESSIONAL		STUDENT		PROFESSIONAL		STUDENT		PROFESSIONAL		STUDENT		PROFESSIONAL		STUDENT	
			Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words
ABSTRACT & INTRODUCTION																		
MOVE 1	817	809	0	0.00	1	1.24	0	0.00	0	0.00	0	0.00	0	0.00	4	4.90	8	9.89
MOVE 2	535	218	4	7.48	3	13.76	0	0.00	0	0.00	0	0.00	0	0.00	1	1.87	0	0.00
MOVE 3	483	1,106	0	0.00	0	0.00	1	2.07	8	7.23	1	2.07	0	0.00	4	8.28	6	5.42
CASE PRESENTATION																		
MOVE 4	1,223	4,167	0	0.00	0	0.00	0	0.00	2	0.48	1	0.82	1	0.24	8	6.54	1	0.24
MOVE 5	2,573	3,284	0	0.00	0	0.00	1	0.39	0	0.00	43	16.71	4	1.22	10	3.89	11	3.35
MOVE 6	555	1,522	0	0.00	1	0.66	0	0.00	0	0.00	3	5.41	0	0.00	6	10.81	5	3.29
MOVE 7	441	1,147	0	0.00	1	0.87	0	0.00	0	0.00	5	11.34	0	0.00	0	0.00	2	1.74
DISCUSSION																		
MOVE 8	495	-	4	8.08	-	-	0	0.00	-	-	0	0.00	-	-	3	6.06	-	-
MOVE 9	738	-	7	9.49	-	-	2	2.71	-	-	1	1.36	-	-	3	4.07	-	-
MOVE 10	4,834	12,397	11	2.28	23	1.86	3	0.62	21	1.69	6	1.24	10	0.81	15	3.10	93	7.50
MOVE 11	1,309	4,968	3	2.29	5	1.01	1	0.76	5	1.01	0	0.00	0	0.00	1	0.76	10	2.01
MOVE 12	590	297	3	5.08	3	10.10	1	1.69	0	0.00	0	0.00	0	0.00	1	1.69	0	0.00
TOTALS	**14,593**	**29,915**	**32**	**2.19**	**37**	**1.24**	**9**	**0.62**	**36**	**1.20**	**60**	**4.11**	**15**	**0.50**	**56**	**3.84**	**136**	**4.55**

APPENDIX 7

INTERACTIONAL METADISCOURSE FUNCTIONS PER MOVE IN PROFESSIONAL AND STUDENT CASE REPORTS

MOVES	TOTAL NUMBER OF WORDS IN MOVE		EVIDENTIALS				HEDGES				BOOSTERS				ATTITUDE MARKERS				SELF MENTION				ENGAGEMENT MARKERS			
	PROFESSIONAL	STUDENT	PROFESSIONAL		STUDENT		PROFESSIONAL		STUDENT		PROFESSIONAL		STUDENT		PROFESSIONAL		STUDENT		PROFESSIONAL		STUDENT		PROFESSIONAL		STUDENT	
			Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words	Number of items	Per 1000 words
ABSTRACT & INTRODUCTION																										
MOVE 1	817	809	14	17.14	1	1.24	14	17.14	18	22.25	2	2.45	8	9.89	6	7.34	16	19.78	0	0.00	3	3.71	0	0.00	1	1.24
MOVE 2	535	218	12	22.43	0	0.00	19	35.51	6	27.52	0	0.00	0	0.00	4	7.48	4	18.35	2	3.74	0	0.00	0	0.00	0	0.00
MOVE 3	483	1,106	2	4.14	0	0.00	0	0.00	0	0.00	1	2.07	0	0.00	1	2.07	5	4.52	7	14.49	7	6.33	0	0.00	2	1.81
CASE PRESENTATION																										
MOVE 4	1,223	4,167	4	3.27	27	6.48	7	5.72	17	4.08	0	0.00	2	0.48	1	0.82	0	0.00	0	0.00	10	2.40	0	0.00	1	0.24
MOVE 5	2,573	3,284	2	0.76	19	5.79	11	4.28	21	6.39	0	0.00	1	0.30	0	0.00	1	0.30	0	0.00	1	0.30	0	0.00	2	0.61
MOVE 6	555	1,522	0	0.00	4	2.63	2	3.60	4	2.63	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.66	0	0.00	0	0.00
MOVE 7	441	1,147	0	0.00	7	6.10	1	2.27	6	5.23	0	0.00	1	0.87	0	0.00	6	5.23	0	0.00	7	6.10	0	0.00	0	0.00
DISCUSSION																										
MOVE 8	495	-	6	12.12	-	-	12	24.24	-	-	0	0.00	-	-	0	0.00	-	-	0	0.00	-	-	0	0.00	-	-
MOVE 9	738	-	12	16.00	-	-	23	31.17	-	-	2	2.71	-	-	9	12.20	-	-	4	5.42	-	-	3	4.07	-	-
MOVE 10	4,834	12,397	83	17.53	141	11.37	120	24.82	223	17.99	13	2.69	8	0.65	12	2.48	19	1.53	9	1.86	2	0.16	7	1.45	27	2.18
MOVE 11	1,309	4,968	31	23.03	48	9.66	19	14.51	54	10.87	1	0.76	4	0.81	10	7.64	20	4.03	1	0.76	0	0.00	7	5.35	20	4.03
MOVE 12	590	297	1	1.69	0	0.00	21	35.59	2	6.73	2	3.39	0	0.00	13	22.03	4	13.47	4	6.78	7	23.57	4	6.78	10	33.67
TOTALS	**14,593**	**29,915**	**167**	**11.44**	**247**	**8.26**	**249**	**17.06**	**351**	**11.73**	**21**	**1.44**	**24**	**0.80**	**56**	**3.84**	**75**	**2.51**	**27**	**1.85**	**38**	**1.27**	**21**	**1.44**	**63**	**2.11**

APPENDIX 8

TRANSITIVITY AND GENRE ANALYSIS

PUBLISHED CASE REPORT:

SUCCESSFUL ENDOVASCULAR TREATMENT OF A LARGE VEIN OF GALEN MALFORMATION IN AN INFANT (VGMA)

Note: references to figures and acknowledgements have been omitted

ABSTRACT/SUMMARY
MOVE A3
STEP 1A Abstract 1. A case of a 9 month-old infant with a large Vein of Galen Malformation [Verbiage] is reported [Pr: verbal] *(by the authors [Sayer])* *STEP 2* 2. The malformation [Goal] was successfully [C: manner/quality] treated [Pr: material] *(by radiologists [Actor])* by embolization [C: manner/means] with rapid and complete thrombosis of the malformation [C: accompaniment/comitative].
MOVE A2
STEP 1 3. To our knowledge [C: angle], complete thrombosis of the Vein of Galen Malformation following endovascular treatment with lack of any complications [Verbiage] has not previously [C: location/time] been reported [Pr: verbal] *(by researchers [Sayer])* in the South African literature [C: location/place].

CASE PRESENTATION
MOVE 4
Case report 4. A 9-month-old male infant [Goal] was admitted [Pr: material] *(by the medical team [Actor])* to Baragwanath Hospital [C: location/place] with a progressively increasing cranial size [C: accompaniment/comitative]. 5. The head circumference [Carrier] was [Pr: relational/intensive] 50 cm [Attribute] at 9 months [C: location/time] 6. which [Carrier] was [Pr: relational/intensive] beyond the 98th centile for age [Attribute/C: location/place].
MOVE 5
STEP 1 7. Neurological examination [Carrier] was [Pr: relational/intensive] essentially normal [Attribute], 8. as was [Pr: relational/intensive] the cardiac function [Carrier]. 9. An intracranial bruit [Phenomenon] was detected [Pr: mental/perceptive] *(by the medical team [Senser])* at physical examination [C: location/time]. *STEP 3* 10. Cranial ultrasonography and Doppler flow studies [Token] revealed [Pr: relational/intensive] a large Vein of Galen Malformation (VGM) with turbulent bi-directional flow in the enlarged vein of Galen [Value] with both lateral ventricles markedly enlarged [C: accompaniment/addition]. 11. Pre and post contrast axial CT scan studies [Token] confirmed [Pr: relational/intensive] a large VGM [[12]] and obstructive hydrocephalus [Value]. 12. [[*(the hydrocephalus [Token])* measuring [Pr: relational/intensive] 4.5x4 cm [Value]]] 13. Cerebral angiography [Scope] was performed [Pr: material] with surgical cut down of the superficial femoral artery [C: accompaniment/comitative] *(by the radiologist [Actor])]*. 14. There were [Pr: existential] two major direct feeders/fistulous connections to the vein of Galen [Existent] 15. arising from [Pr: relational/circumstantial/spatio-temporal] the left posterior cerebral artery [Attribute]. 16. There was [Pr: existential] also narrowing of a proximal part of the straight sinus [Existent]. 17. There was [Pr: existential] no evidence of venous reflux from the VGM into the deep cerebral veins [Existent]. 18. This VGM [Carrier] was classified as [Pr: relational/intensive/assignment] Type 1 [Attribute] *(by researchers [Attributor])* according to Yasargil's classification of the VGM [C: angle]

MOVE 6
19. In view of the major contribution of the VGM to the patient's obstructive hydrocephalus [C: cause/reason], it

was decided [Pr: mental/cognitive] *(by the medical team [Senser])* [[20]] [Phenomenon]
20. [[*(the medical team [Actor])* to perform [Pr: material] transarterial embolization of the VGM [Scope] in two stages [C: manner/means]]]
21. Under general anaesthesia [C: manner/means], following right superficial femoral artery cut down and left vertebral artery catheterisation [C: location/time], the major feeding pedicle [[22]] [Goal] was superselectively [C: manner/quality] catheterized [Pr: material] *(by the radiologist [Actor])* with a microcatheter, Tracker-Unibody (Target Therapeutic) and Dasher 14 (TargetTherapeutic) guidewire [C: manner/means].
22. [[*(the pedicle [Carrier])* originating from [Pr: relational/circumstantial/spatio-temporal] the left posterior cerebral artery [Attribute]]]
23. The artery [Goal] was completely [C: manner/quality] embolized [Pr: material] *(by the radiologist [Actor])* with placement of six microcoils (Target Therapeutic) [C: accompaniment/comitative].

MOVE 7

24. Immediate control vertebral angiogram [Token] showed [Pr: relational/intensive] no visualisation of the VGM, preferential flow of blood into the normal vascular network in the anterior and middle artery distribution, visualisation of multiple normal cerebellar arteries <<25>> and spontaneous thrombosis of the second arterial feeder/fistulous connection [Value].
25. << *(arteries [Phenomenon])* not seen [Pr: mental/perceptive] *(by the radiologist [Senser])* on a control angiogram [C: location/place]>>
26. Complete cerebral angiogram [Token] confirmed [Pr: relational/intensive] no visualisation of the VGM [Value].
27. The patient [Actor] tolerated [Pr: material] the procedure [Scope] well [C: manner/quality]
28. and *(the patient)* suffered [Pr: material] no complications [Scope].
29. Cranial ultrasound and Doppler studies [[30]] [Token] showed [Pr: relational/intensive] complete thrombosis of the VGM with no detectable flow and slight shrinkage of the aneurysm [Value]
30. [[*(the studies {Scope])* performed [Pr: material] 24 hours following embolization [C: location/time]]]

MOVE 6

31. Three weeks following embolization [C: location/time] a ventriculo-peritoneal shunt [Goal] was inserted [Pr: material] *(by the surgeon [Actor]).*

MOVE 7

32. Control CT scan [Token] showed [Pr: relational/intensive] [[33]] [Value]
33. [[the size of the ventricles [Carrier] to be [Pr: relational/intensive] markedly diminished [Attribute]]].
34. The patient [Goal] was discharged [Pr: material] home [C: location/place] *(by the medical team [Actor])*
35. *(the patient [Carrier] being [Pr: relational/intensive])* in a good condition [Attribute] without any neurological deficit [C: accompaniment/addition].
36. From a clinical point of view [C: angle], the baby [Actor] is doing [Pr: material] well [C: manner/quality] 5 months following embolization [C: location/time].
37. Cranial ultrasound and Doppler studies [Goal] are used [Pr: material] *(by radiologists [Actor])*
38. *(radiologists [Actor])* to follow up [Pr: material] the size of the ventricles and thrombosis of the VGM [Scope].

DISCUSSION

MOVE 9

Discussion
39. The VGM [Carrier] is [Pr: relational/intensive] a rare anomaly, [Attribute].

MOVE 10

STEP 2
40. *(the anomaly {Token])* mainly affecting [Pr: relational/circumstantial/matter] the paediatric population [Value]

MOVE 11

STEP 1
41. The natural history of the disease [Token] is associated with [Pr: relational/circumstantial/accompaniment] high mortality and morbidity rates [Value].
42. Active therapy [Carrier] is [Pr: relational/intensive] required [[43]] [Attribute]
43. [[*(the medical team [Actor])* to avoid or minimize [Pr: material] its early systemic and neurological complications [Goal]]]

STEP 2
44. VGM [Goal] can be treated [Pr: material] *(by the medical team [Actor])* by surgery, embolization or both [C: manner/means].
45. The endovascular approach [Carrier] is [Pr: relational/intensive] a preferential method of treatment [Attribute] because of the lower mortality rate compared to a surgical approach [C: cause/reason]
46. The type of endovascular approach [Carrier] depends on [Pr: relational/circumstantial/causal] the specific anatomy of the given case [Attribute].

47. The most commonly used classification of the VGM [Carrier] is [Pr: relational/intensive] an angiographic classification [Attribute] according to Yasargil [C: angle]
48. who [Assigner] divides [Pr: relational/intensive/assignment] VGM [Token] into four categories [Value].
49. Type 1 [Token] represents [Pr: relational/intensive/significance] pure fistula/fistulas between arteries and the vein of Galen [Value].
50. Type 2 [Token] is composed of [Pr: relational/intensive/kind] thalamoperforators [Token].
51. that [Token] supply [Pr: relational/circumstantial] both brain tissue [Value]
52. and *(that {Token])* give [Pr: material] branches [Goal] to the vein of Galen [Recipient]
53. Type 3 [Token] represents [Pr: relational/intensive/significance] a mixed type 1 and 2 lesions [Value].
54. Type 4 [Token] represents [Pr: relational/intensive/significance] a true AVM [Value]
55. that [Token] drains into [Pr: relational/circumstantial/spatio-temporal] veins [Value] [[56]]
56. [[which [Token] then empty into [Pr: relational/circumstantial/ spatio-temporal] the vein of Galen [Value]]]
57. The transarterial approach [Token] appears to be [Pr: relational/intensive] the best therapeutic modality for embolization of Type 1, 2 and 3 lesions [Value].
58. Microcoils, cyanoacrylates and detachable balloons [Goal] can be used [Pr: material] *(by radiologists [Actor])* as embolic agents [C: role/guise].
59. Transfemoral transvenous and transtorcular approaches [Goal] can also be used [Pr: material] *(by radiologists [Actor])*, alone or in combination with a transarterial approach [C: accompaniment/comitation].
60. It [Token] allows [Pr: relational/circumstantial/causal] more rapid delivery of larger and longer coils [Value].
61. The Type 4 malformation [Goal] should be treated [Pr: material] *(by the radiologist [Actor])* from the arterial side [C: location/place]
62. *(the radiologist [Actor])* to avoid [Pr: material] venous hypertension, congestion and their associated mortality [Scope].
63. A staged embolization [Carrier] is [Pr: relational/intensive] required [Attribute],
64. which [Token] allows for [Pr: relational/circumstantial/causal] a gradual reduction in the blood flow through the fistula [Value].
65. This [Token] can theoretically [C: manner/quality] prevent [Pr: relational/circumstantial/causal] development of regional brain swelling and haemorrhage [Value].
66. An unusual but potentially fatal complication of endovascular embolization [Value] is [Pr: relational/intensive] a consumptive coagulopathy with postembolization thrombocytopenia [[67]] [Token]
67. [[that is followed by [Pr: relational/circumstantial/spatio-temporal] intracranial haemorrhage [Token]]]
68. This [Value] can be caused by [Pr: relational/circumstantial/causal] rapid deposition of large amounts of thrombus [Token] following embolization [C: location/time].
69. Another complication <<70>> [Value] is [Pr: relational/intensive] progressive thrombosis of dural venous sinuses and cortical veins [Token].
70. <<which [Actor] may occur [Pr: material] despite successful occlusion of VGM [C: contingency/ concession]>>
71. The management of hydrocephalus, the need for and timing of ventricular drainage for patients with VGM [Carrier] remains [Pr: relational/intensive] controversial [Attribute].
72. There are [Pr: existential] a number of complications [[73]] [Existent].
73. [[associated with (Pr: relational/circumstantial/accompaniment] VGM and the treatment of hydrocephalus [[74]] [Attribute]]
74. [[described [Pr: verbal] *(by the writer [Sayer])*]]

MOVE 12

STEP 1

Conclusion

75. The management of VGM [Carrier] is [Pr: relational/intensive] a challenging therapeutic problem for neurointerventional radiologists [Attribute].
76. The endovascular approach [Token] at present [C: location/time] represents [Pr: relational/intensive/significance] the best treatment modality, [Value] despite technical difficulties and an often unpredictable future outcome in these embolized patients [C: contingency/concession].
77. The present case [Token] illustrates [Pr: relational/intensive] in a unique fashion [C: manner/quality] the effectiveness of endovascular treatment [Value].

STUDENT CASE REPORT:

ARTERIOVENOUS MALFORMATION (AMA)

INTRODUCTION
MOVE 3
INTRODUCTION *STEP 2* 1. My case study [Carrier] deals with [Pr: relational/circumstantial/matter] Arteriovenous Malformation [Attribute]
MOVE 1
2. This [Carrier] is [Pr: relational/intensive] a congenital disorder [Attribute], 3. which [Actor] usually occurs [Pr: material] between the ages of twenty and forty [C: location/time] 4. If it [Carrier] goes [Pr: relational/intensive] undetected [Attribute] *(by medical personnel [Attributor])* 5. it [Token] could cause [Pr: relational/circumstantial/causal] serious problems to the patient [Value], 6. but <<7>> it [Goal] can be treated [Pr: material] *(by medical personnel [Actor])*>> 7. <<if *(the malformation [Phenomenon] is)* detected [Pr: mental/perceptive] *(by medical personnel [Senser])*>> 8. and the patient [Actor] can lead [Pr: material] a normal, healthy life [Scope] 9. There are [Pr: existential] many methods [[10]] [Existent] 10. [[in which [C: manner/means] an AVM [Goal] may be treated Pr: material] *(by medical personnel [Actor])*]]
MOVE 3: OCCUPYING NICHE
STEP 3 11. We [Sayer] will now go into detail [Pr: verbal] about [[12]] and [[13]] [C: matter] 12. [[what [Attribute] an AVM [Carrier] is [Pr: relational/intensive]]] 13. [[how [C: manner/quality] it [Goal] is treated [Pr: material] *(by medical personnel [Actor])*]]

CASE PRESENTATION
MOVE 4: REPORTING PROBLEM
CLINICAL HISTORY OF PATIENT 14. For identification purposes [C: cause/purpose] we [Sayer] will refer to [Pr: verbal] the patient [Target] as Ms.X [C: role/guise]. 15. Ms.X [Carrier] is [Pr: relational/intensive] a working, coloured female in her early twenties [Attribute] 16. She [Actor] leads [Pr: material] a normal healthy life [Scope] 17. and *(she [Carrier])* is [Pr: relational/intensive] a very active person [Attribute] 18. About three years ago [C: location/time] she [Senser] began to experience [Pr: mental/perceptive] headaches [Phenomenon] 19. which [Scope] she [Actor] initially [C: location/time] ignored [Pr: material] 20. The headaches [Actor] persisted [Pr: material] 21. and *(the headaches [Carrier])* became [Pr: relational/intensive] severe [Attribute] 22. Shortly thereafter [C: location/time] she [Actor] fitted [Pr: material] for the first time 23. She [Goal] was then admitted [Pr: material] to hospital [C: location/place] *(by the medical team [Actor])* 24. and it was decided [Pr: mental/cognitive] *(by the medical team [Senser])* 25. that a CT scan of her brain [Scope] be done [Pr: material] *(by the medical team [Actor])* 26. The CT scan [Token] revealed [Pr: relational/intensive] features [[27]] [Value] 27. [[which [Carrier] were [Pr: relational/intensive] suggestive of an Artenovenous Malformation in the right fronto parietal region [Attribute]]] 28. For further evaluation [C: cause/purpose] an angiogram [Verbiage] was suggested [Pr: verbal] *(by the medical team [Sayer])* 29. The angiogram [Token] showed [Pr: relational/intensive] [[30]] [Value] 30. [[that she [Carrier] had [Pr: relational/possessive] an AVM [[31]] [Attribute]]] 31. [[*(the AVM [Token])* arising from [Pr: relational/circumstantial/spatio-temporal] one of the branches of the middle cerebral artery, possibly the anterior temporal artery [Value]]] 32. which [Token] was draining into [Pr: relational/circumstantial/spatio-temporal] the sphenoparietal sinus and then into the cavernous sinus. [C: Value]

33. Drainage [Carrier] also appeared to occur [Pr: relational/intensive] via the thalamina straiate vein into the internal cerebral vein [Attribute/C: location/place].
34. Ms. X [Recipient] was placed on [Pr: material] phenyton [Goal] *(by the medical team [Actor])*
35. and *(Mrs X [Goal])* received [Pr: material] treatment [Scope]
36. She [Goal] was then discharged [Pr: material] from hospital [C: location/place] *(by the medical team [Actor])*
37. but soon thereafter [C: location/time] treatment *(Mrs X)* returned [Pr: material] because of multiple nodes on the right side of her neck[C: cause/reason],
38. which [Actor] had increased [Pr: material] with time [C: cause/reason]
39. An ultrasound of her neck [Scope] was done [Pr: material] *(by the radiologist [Actor])*
40. and it [Phenomenon…] was found [Pr: mental/perceptive] *(by the radiologist [Senser])* [[41]] […Phenomenon]
41. [[that there was [Pr: existential] extensive bilateral cervical lymphadenopathy present [Existent]]]
42. which [Phenomenon] can be see [Pr: mental/perceptive] on the ultrasound radiographs [C: location/place] *(by the reader [Senser])*.
43. Two years later [C: location/time] doctors [Sayer] began to query [Pr: verbal] a re-bleed [Verbiage]

MOVE 5: REPORTING INVESTIGATION OF PROBLEM

STEP 3

44. so another CT scan of the brain [Scope] was done [Pr: material] *(by the radiologist [Actor])*
45. The AVM [Carrier] appeared [Pr: relational/intensive] significantly smaller [Attribute] in comparison to the previous study of the brain [C: manner/comparison]
46. the reason for this [Value] was [Pr: relational/intensive] the proton therapy [[47]] [Token]
47. [[which [Scope] she [Actor] had received [Pr: material]]]
48. No signs of haemorrhage [Carrier] was [Pr: relational/intensive] present [Attribute]

DISCUSSION

MOVE 10: DISCUSSING PROBLEM

STEP 2

AETIOLOGY

49. Arteriovenous Malformation [Token] is [Pr: relational/intensive] an accumulation of communicating arteries and veins [Value]
50. This lesion [Token] can result from [Pr: relational/circumstantial/causal] trauma [Value],
51. initially [C: location/time] *(the trauma [Token])* involving [Pr: relational/possessive/containment] a single artery and vein [Value]
52. But the most commonly it [Carrier] is [Pr: relational/intensive] congenital [Attribute], with a massive syncytium of abnormal arteriovenous connections [C: accompaniment/comitation].

CASE STUDY

Definition

53. Arteriovenous Malformations [Carrier] occur [Pr: relational/intensive] within the central nervous system [C: location/place] as congenital abnormalities [Attribute/C: role/guise].
54. The blood [Goal] is shunted [Pr: material] *(by the system [Actor])* directly [C: manner/quality] from arteries to veins [C: location/place],
55. *(this process)* producing [Pr: relational/circumstantial/causal] an arterio-venous shunt [Value].
56. It [Token] consists of [Pr: relational/possessive] a mass of enlarged and tortuous arteries and veins, in an almost infinite combination of sizes, sites and anastamoses [Value].
57. It [Carrier] may involve [Pr: relational/possessive] several lobes of the brain [Attribute]
58. and? *(which)* [Scope] are usually supplied [Pr: material] by one or more large arteries [[59]] [Actor]
59. [[(*the arteries)* derived from [Pr: relational/circumstantial/spatio-temporal] one or both hemispheres [Attribute]]]
60. It [Goal] is sometimes fed [Pr: material] *(by the artery [Actor])* from below the tentorium [C: location/place]
61. and *(it [Goal] is)* drained [Pr: material] *(by a vein [Actor])* into one or more larger veins [C: location/place].
62. The venous drainage [Carrier] may be [Pr: relational/intensive] deep or superficial [Attribute]
63. The malformation [Carrier] varies [Pr: relational/intensive] in size [C: matter], from a few millimeters to several centimeters in diameter [Attribute/C: extent/distance].
64. Some malformations [Actor] enlarge [Pr: material] with time [C: location/time]
65. but only a few [Actor] may shrink [Pr: material]
66. or (*a few*) even disappear [Pr: material].
67. As the malformation [Actor] enlarges [Pr: material]
68. the surrounding cerebral tissue [Carrier] may become [Pr: relational/intensive] chronically ischemic [Attribute].

69. The male population [Scope] is affected [Pr: material] twice as frequently as the female population [C: extent/frequency] *(by malformations [Agent])*

Locations

70. Arteriovenous Malformations [Carrier] occur [Pr: relational/intensive] virtually in any portion in or on the brain [Attribute/C: location/place],
71. *(the portions of the brain)* including [Pr: relational/possessive] the cerebellum and brainstem [Attribute].
72. It [Phenomenon] is usually found [Pr: mental/perceptive] *(by the radiologist [Senser])* in the cerebral parenchyma [C: location/place].
73. where [C: location/place] the lesion [Token] takes on [Pr: relational/intensive/spatio-temporal] a conical shape [Value],
74. with the apex [Carrier] *(being [Pr: relational/intensive]*) deep [Attribute],
75. *(and the apex [Token])* often reaching [Pr: relational/circumstantial/spatio-temporal] the lateral ventricle [Value]
76. There is [Pr: existential] sometimes a contribution from the middle meningeal [Existent]
77. The most common site [Value] is [Pr: relational/intensive] the territory of the middle cerebral artery, particularly its posterior branches [Token],
78. but it [Carrier] may occur [Pr: relational/intensive] anywhere along the midbrain [Attribute/C: location/place]
79. Malformations [Phenomenon] are rarely found [Pr: mental/perceptive] *(by the radiologist [Senser])* within the spinal cord [C: location/place].

STEP 3

SYMPTOMS

80. Patients [[81]] [Token] usually begin to develop [Pr: relational/possessive] symptoms [Value] between the ages of twenty and forty years [C: location/time], without a peak incidence [C: accompaniment/comitation]
81. [[that [Carrier] are suspected *(by medical personnel [Attributor])* of having [Pr: relational/possessive] an arteriovenous malformation [Attribute]]]
82. Initially [C: location/time] patients [Carrier] presented with [Pr: relational/circumstantial/accompaniment] signs of haemorrhage [Attribute],
83. which [Token] is [Pr: relational/intensive] the most common symptom second only to aneurysms [Value]
84. *(haemorrhage [Carrier] occurring in)* 50 percent of cases and 10 percent of all intracerebral haemorrhages, [Attribute/C: location/place]
85. Bleeding [Carrier] usually occurs [Pr: relational/intensive] within the brain substance [Attribute/C: location/place]
86. but *(bleeding [Carrier])* may occur [Pr: relational/intensive] within the ventricular system or the subarachnoid space as well [Attribute/C: location/place].
87. Neurologic deficit [Phenomenon] may be experienced [Pr: mental/perceptive] by the patient [Senser] due to mass effect, increased venous pressure or vascular steal phenomenon. [C: cause/reason]
88. Seizures [Token] are [Pr: relational/intensive] another common symptom [Value]
89. They [Carrier] may present as [Pr: relational/circumstantial/role] major or minor [C: role/guise]
90. which [Carrier] may be [Pr: relational/intensive] frequent and refractory to medical therapy [Attribute]
91. Occasionally, young patients with severe unrelenting headaches [Carrier] are found *(by medical personnel [Attributor])* to have [Pr: relational/possessive] an arteriovenous malformation [Attribute]
92. Although headaches [Token] are [Pr: relational/intensive] a common symptom [Value]
93. it [Carrier] is [Pr: relational/intensive] not diagnostically helpful in [[94]] [Attribute]
94. [[*(the medical team [Actor])* providing [Pr: material] a diagnosis [Goal]]]
95. as it [Carrier] may simply be [Pr: relational/intensive] a coincidence [Attribute].
96. Different symptoms [Phenomenon] are experienced [Pr: mental/perceptive] *(by the patient [Senser]*
97. *(the symptoms [Carrier])* depending in [Pr: relational/circumstantial/causal] [[98]] [Attribute]
98. [[which region [Attribute] the malformation [Carrier] is situated in [Pr: relational/intensive]]]
99. A dural AVM, near the petrous bone [Carrier] presents with [Pr: relational/circumstantial/accompaniment] benign intracranial hypertension [Attribute]
100. Arteriovenous malformations in neonates and infants [Token] produces [Pr: relational/circumstantial/causal] a high output cardiac failure [Value]
101. and sometimes a bruit [Phenomenon] may be, heard [Pr: mental/perceptive] (*by the doctor [Senser])* over the skull of the orbits [C: location/place].
102. A brainstem AVM [Token] may resemble [Pr: relational/circumstantial] multiple sclerosis [Value],
103. with *(there being [Pr: existential] f*luctuating symptoms and signs of brainstem dysfunction [Existent], possibly as a result of recurrent haemorrhage [C: cause/reason]

STEP 7

EFFECTS OF AN AVM

104. There are [Pr: existential] many risks and complications [[105]] [Existent].

105. [[(*many risks and complications are*)harboured [Pr: relational/possessive] by an arteriovenous malformation [Token]]]
106. and <<107>> the results [Carrier] can be [Pr: relational/intensive] hazardous to the patient [Attribute]
107. <<if the malformation [Goal] is not treated [Pr: material] *(by medical personnel [Actor]* >>,
108. The main risk of an untreated malformation [Value] is [Pr: relational/intensive] [[109]] [Token]
109. [[that the arteries and veins in the affected area [Actor] may rupture [Pr: material]]],
110. *(rupture)* resulting in [Pr: relational/circumstantial/causal] haemorrhage [Value].
111. The risk of haemorrhage of an unruptured AVM, from the time of discovery [Token] is [Pr: relational/intensive] about one percent per year [Value] cumulatively [C: manner/quality]
112. Once the AVM [Actor] has bled [Pr: material]
113. the risk of rebleeding [Token] increases to [Pr: relational/circumstantial/causal] six percent per year [Value]
114. With each haemorrhage [C: location/time] the risk of dying [Token] is [Pr: relational/intensive] approximately ten percent [Value]
115. and the morbidity [Token] *(is)* at least fifteen percent [Value].
116. Smaller AVMs [Carrier] remain [Pr: relational/intensive] stable in size [Attribute]
117. but some [Actor] enlarge [Pr: material]
118. as time [Actor] passes [Pr: material]
119. Associated aneurysms on a feeding artery [Phenomenon] are commonly seen [Pr: mental/perceptive] *(by medical personnel [Senser])*
120. In such cases [C: location/place], the haemorrhage [[121]] [Carrier] is [Pr: relational/intensive] usually due to the rupture of the aneurysm [Attribute/ C: cause/reason]
121. [[*(the haemorrhage [Token])* resulting [Pr: relational]]]
122. AVMs [Token] are [Pr: relational/intensive] usually the cause of subarachnoid haemorrhage and intracerebral hematomas [Value].
123. Subarachnoid haemorrhage due to AVMs [Carrier] generally occurs [Pr: relational/intensive] at a younger age than that due to aneurysms. [Attribute/C: location/time].
124. Data from the Mayo Clinic [Token] has demonstrated [Pr: relational/intensive] [[124]] [Value]
125. [[that in two thirds of affected patients[C: location/place], an unruptured AVM [Actor] will bleed [Pr: material] over a twenty year period [C: extent/duration]]]
126. Early death and the risk of rebleeding [Carrier] is [Pr: relational/intensive] less common than after rupture of an intracranial aneurysm [Attribute].
127. Neurological changes [Carrier] are [Pr: relational/intensive] usually more extensive [Attribute]
128. However after several recurrent haemorrhages [C: location/time] patients [Actor] may survive [Pr: material] many years [C: extent/duration] with remarkable little disability [C: accompaniment/comitation].

MOVE 11

STEP 1

TREATMENT

Decisions

129. The decision of treatment [Carrier] is [Pr: relational/intensive] a complicated one [Attribute],
130. numerous factors [Scope] need to be taken [Pr: material] into consideration [C: location/place] *(by the medical team [Actor])*
131. before *(the medical team [Senser])* deciding [Pr: mental/cognitive] [[131]] [Phenomenon]
132. [[how [C: manner/means] the arteriovenous malformation [Goal] will be treated [Pr: material] *(by the medical team [Actor])]]*

STEP 2

133. The size and location of the lesion [Carrier] is [Pr: relational/intensive] important [Attribute],
134. because the possibility of [[134]] [Carrier], with increasing shunting of blood [C: accompaniment/comitation], will further impair [Pr: relational/circumstantial/concessive] the oxygenation of the surrounding healthy tissues [Attribute].
135. [[the AVM [Actor] increasing [Pr: material] in size [C: matter]]]
136. The age and the symptoms [[136]] [Scope] are taken [Pr: material] into consideration [C: location/place] *(by the medical team [Actor]).*
137. [[*(the symptoms [Phenomenon] are)* experienced [Pr: mental/perceptive] by the patient [Senser]]]
138. An AVM [[138]] [Goal] should be removed [Pr: material] surgically [C: manner/means] *(by the medical team [Actor])*
139. [[that [Actor] has bled [Pr: material]]]
140. if *(it is)* possible [Attribute]
141. because it [Carrier] is [Pr: relational/intensivel] at a high risk of bleeding [Attribute/ C: location/place]
142. The decision [Carrier] is [Pr: relational/intensive] complicated [Attribute] even further [C: manner/quality]
143. if the patient [Senser] experienced [Pr: mental/perceptive] seizures [Phenomenon].

144. In cases [[144]] and [[145]] [C: location/place] surgical removal [Verbiage] is most often recommended [Pr: verbal] *(by medical personnel [Sayer])*
145. [[where the patient [Carrier] is [Pr: relational/intensive] young [Attribute]]]
146. [[the AVM [Carrier] is [Pr: relational/intensive] readily accessible [Attribute]]]
147. especially when the seizures [Carrier] are [Pr: relational/intensive] medically refractory [Attribute]
148. The reason for surgery [Value] in this case [C: location/place] is [Pr: relational/intensive] [[148]] [Token]
149. [[that the probability of [[149]][Carrier] will be [Pr: relational/intensive] totally impossible [Attribute]]]
150. [[the AVM [Actor] increasing [Pr: material] in size [C: matter]]]
151. Most AVMs [[151]] [Carrier] is [Pr: relational/intensive] nonresectable [Attribute]
152. [[that [Carrier] are [Pr: relational/intensive] deep in the hemisphere [Attribute]]]
153. since according to their natural history [C: angle] they [Carrier] would have [Pr: relational/possessive] a lower morbidity [[153]] [Attribute]
154. [[than *(morbidity [Phenomenon])* would be expected [Pr: mental/cognitive] *(by researchers [Senser])* from surgical treatment {C: location/place]]]
155. The excision of an AVM in the tip of the occipital, frontal or the temporal lobe [Carrier] may not only be [Pr: relational/intensive] lifesaving [Attribute] in the face of haemorrhage [C: location/place]
156. but *(the excision [Actor])* may control [Pr: material] seizures [Goal]
157. and *(the excision [Actor] may))* improve [Pr: material] the circulation in the involved hemisphere [Goal].
158. Whenever *(surgery [Carrier] is [Pr: relational/intensive])* possible [Attribute]
159. surgery [Token] is [Pr: relational/intensive] the most common form of treatment [Value].
160. but operation [Carrier] is [Pr: relational/intensive] hazardous and usually palliative [Attribute]
161. During operation [C: location/time] microsurgical dissection and resection of the entire malformation [Scope] is carried out [Pr: material] *(by the surgeon [Actor]),* instead of simple ligation of the feeding arteries [C: accompaniment/addition]
162. The outcome of surgery [Value] is determined by [Pr: relational/circumstantial/causal] the size and location of the malformation [Token].
163. Statistics [Token] show [Pr: relational/intensive] [[163]] [Value]
164. [[that the mortality [Carrier] is [Pr: relational/intensive] less than five percent [Attribute/C: extent/frequency]]]
165. and morbidity [Carrier] *(is [Pr: relational/intensive])* less than ten percent [Attribute/C: extent/frequency].

Ionising Radiation Therapy

166. Arterial embolization and radiation therapy [Token] are [Pr: relational/intensive] alternative or adjunctive methods of treatment [Value]
167. Use [Scope…] is made [Pr: material] of interventional neuroradiological techniques […Scope] *(by the radiologist [Actor])*
168. or particulate matter or glues [Goal] may be introduced [Pr: material] *(by the radiologist [Actor])* into the AVM via the feeding vessels [C: location/place]
169. *(the radiologist [Actor])* to occlude [Pr: material] the vascular shunt [Goal].
170. Nevertheless this technique [Actor] is able to reduce [Pr: material] flow [Goal] through the AVM [C: location/place] prior to direct surgical intervention [C: location/time]

Gamma and proton radiation

171. Small-to-medium sized AVMs [Goal] may possibly be completely obliterated [Pr: material] by ionizing radiation [C: manner/means] *(by the radiologist [Actor])*
172. Focused gamma or proton beam irradiation [Token] has demonstrated [Pr: relational/intensive] efficacy [Value]
173. and occasional success with the conventional irradiation [Verbiage] has been reported [Pr: verbal] *(by radiologists [Sayer])*
174. Endothelial proliferation [Value] is caused by [Pr: relational/circumstantial/causal] the ionizing radiation [Token]
175. The duration [[175]] [Value] is [Pr: relational/circumstantial/spatio-temporal] usually between six months to two years [Token/C: extent/duration]
176. [[(*the radiologist [Actor])* to obliterate [Pr: material] the lesion [Goal]]]
177. Focused irradiation [Verbiage] is recommended [Pr: verbal] for deep, surgically inaccessible AVMs [C: cause/behalf] *(by radiologists [Sayer])*

MOVE 6

178. This [Token] is [Pr: relational/intensive] [[178]] [Value]
179. [[why Ms.X [Actor] received [Pr: material] proton therapy [Scope]]]
180. She [Actor] had to travel [Pr: material] to NAC, just outside Cape Town [C: location/place]
181. *(she [Actor])* to receive [Pr: material] her treatment [Scope].

MOVE 11

STEP 2

Proton therapy

182. Proton therapy [Token] is [Pr: relational/intensive] the treatment of an AVM [[182]] [Value]
183. [[*(the treatment [Actor])* making use of [Pr: material] protons only [Goal]]]
184. These protons [Carrier] have [Pr: relational/possessive] very high energies [Attribute]
185. and *(the protons [Goal])* are emitted [Pr: material] *(by the machine Actor])* in straight lines [C: manner/quality].
186. The ionization [[186]] [Goal] is mostly concentrated [Pr: material] *(by the machine [Actor])* at the end of their pass [C: location/place]
187. [[they [Token] produce [Pr: relational/circumstantial/causal] *(ionization [Value])*]]
188. This [Token] is called [Pr: relational/intensive/assignment] the Bragg Peak [Value] *(by researchers [Assigner]).*
189. Unlike radiotherapy [C: manner/comparison] <<189>> with proton therapy [C: matter] the surrounding healthy tissue [Carrier] is [Pr: relational/intensive] unharmed [Attribute]
190. <<were the surrounding normal healthy tissue [Goal] is also irradiated [Pr: material] *(by the machine [Actor])*, unintentionally [C: manner/quality]>>
191. all the radiation [Goal] is concentrated [Pr: material] *(by the machine [Actor])* in the affected area only [C: location/place].]

MOVE 6

192. This [Carrier] was [Pr: relational/intensive] a very long and strenuous period for Ms.X [Attribute]
193. because she [Actor] had to sit [Pr: material] "dead" still [C: manner/quality]
194. because any movement by the patient [Actor] will stop [Pr: material] the emission of the photon beam [Goal]

MOVE 11

STEP 2

195. This treatment [Carrier] is [Pr: relational/intensive] very successful [Attribute]
196. but there is [Pr: existential] a number of side effects [Existent]

MOVE 7

STEP 1

197. Ms.X [Carrier] was [Pr: relational/intensive] constantly nauseous [Attribute]
198. and her hair [Actor] began to fall out [Pr: material].

MOVE 11

STEP 2

Medical Applications

199. From the medical point of view [C: angle] cautious control of severe hypertension [Carrier] is [Pr: relational/intensive] wise [Attribute]
200. and occasionally [C: extent/frequency] cardiac rhythm disturbances or even acute neurogenic pulmonary oedema [Carrier] require [Pr: relational/possessive] appropriate treatment [Attribute]
201. Analgesia for the headache and sedation [Carrier] <<202>> are [Pr: relational/intensive] useful [Attribute].
202. <<if the patient [Carrier] is [Pr: relational/intensive] very irritable [Attribute]>>
203. Antifibrinolytic drugs such as epsilon aminocaproic acid or tronexamic acid [Token] reduce [Pr: relational/circumstantial/causal] the risk of rebleeding [Value] by [[203]] [C: manner/means]]
204. [[*(the drugs [Actor])* reducing [Pr: material] the lysis of the fibrin clot [[204]] [Goal]]]
205. [[*(the clot [Actor])* plugging [Pr: material] the ruptured aneurysm [Goal]]]
206. but *(the drugs [Actor]* do not improve [Pr: material] the overall prognosis [Goal],
207. probably because the risk of vasospasm [Carrier] is [Pr: relational/intensive] increased [Attribute]
208. Bedrest for four to six weeks [Verbiage] is usually recommended [Pr: verbal] *(by the medical team [Sayer])*
209. but there is [Pr: existential] an increasing tendency [[209]] [Existent]
210. [[gently *(the medical team [Actor])* to mobilize [Pr: material] patients [Goal]]]
211. when the headache [Actor] has resolved [Pr: material]

MOVE 10

CASE PRESENTATION

STEP 5

Imaging Techniques

212. In order *(the medical personnel [Actor])* to make [Pr: material] on accurate and liable diagnosis [Scope]
213. certain imaging of the brain, such as CT and MRI [Scope] need to be done [Pr: material] *(by the medical personnel [Actor])*
214. A cerebral angiogram [[215]] [Scope] will only be done [Pr: material] *(by the radiologist [Actor])*
215. [[*(the angiogram [Sayer])* to reveal [Pr: verbal] the malformation [Verbiage]]]
216. if finding the lesion [Token] would lead to [Pr: relational/circumstantial/causal] treatment [[217]] [Value]
217. [[*(the treatment [Actor])* to remove or obliterate it [Goal]]]

218. The diagnosis [Phenomenon] may be picked up [Pr: mental/perceptive] on a CT scan, [C: location/place] *(by the radiologist [Senser]*
219. a plain scan [Sayer] may show [Pr: verbal] calcification [Verbiage].
220. and enhanced scan [Carrier] is [Pr: relational/intensive] most likely [[221]] [Attribute]
221. [[*(the scan [Sayer])* to show [Pr: verbal] the dilated vessels of large malformations [Verbiage]]]
222. MRI [Carrier] is [Pr: relational/intensive] more sensitive [Attribute],
223. and *(MRI [Sayer])* can show [Pr: verbal] areas of old haemorrhage and flow voids [Value]

CASE PRESENTATION

MOVE 7

STEP 2

Prognosis

224. Ms.X's prognosis [Carrier] looks [Pr: relational/intensive] very promising [Attribute]
225. There does not appear to be [Pr: existential] any features [[226]] [Existent]
226. [[which [Token] will suggest [Pr: relational/intensive/sign] an acute or recent haemorrhage within the AVM [Value]]]
227. Ms.X [Actor] responded [Pr: material] well [C: manner/quality] to the proton therapy [Scope]
228. and no complication [Scope] was encountered [Pr: material] *(by the radiologist [Actor])*.
229. she [Carrier] is [Pr: relational/intensive] well on her way to recovery [Attribute/C: location/place]
230. The proton therapy [Initiator] left her [Carrier] feeling [Pr: relational/intensive] weak [Attribute]
231. and she [Carrier] is not [Pr: relational/intensive] as active as [[232]] [Attribute]
232. [[she [Carrier] was [Pr: relational/intensive] *(active [Attribute])* before the treatment [C: location/time]]]
233. but all of this [Carrier] will be [Pr: relational/intensive] resolved [Attribute] with a little rest [C: manner/means]
234. she [Sayer] says [Pr: verbal].
235. Ms.X [Actor] will still have to go [Pr: material] to hospital [C: location/place] for regular check-ups and tests [C: cause/purpose].
236. But the worst [Carrier] is [Pr: relational/intensive] over [Attribute]
237. and she [Carrier] is [Pr: relational/intensive] very positive [Attribute].

APPENDIX 9

THEMATIC ANALYSIS

PUBLISHED CASE REPORT

SUCCESSFUL ENDOVASCULAR TREATMENT OF A LARGE VEIN OF GALEN MALFORMATION IN AN INFANT

(VGMA)

	MOVE	STEP	THEME		RHEME
			Textual & Interpersonal	Topical	
SUMMARY	A3	2		A case of a 9 month-old infant with a large Vein of Galen Malformation	is reported
		3		The malformation	was successfully treated by transarterial embolization with rapid and complete thrombosis of the malformation
	A2	1	**To our knowledge**	complete thrombosis of the Vein of Galen Maiformation following endovascular treatment with lack of any complications	has not previously been reported in the South African literature.
CASE PRESENTATION	4			A 9-month-old male infant	was admitted to Baragwanath Hospital with a progressively increasing cranial size
				The head circumference	was 50 cm at 9 months,.
			which	which (=the head circumference)	was beyond the 98th centile for age
	5	1		Neurological examination	was essentially normal,
			as		was the cardiac function
				An intracranial bruit	was detected at physical examination.
		3		Cranial ultrasonography and Doppler flow studies	revealed a large Vein of Galen Malformation (VGM) with turbulent bi-directional flow in the enlarged vein of Galen with both lateral ventricles markedly enlarged.
					(Figure 1)
				Pre and post contrast axial CT scan studies	confirmed a large VGM measuring 4.5x4 cm and obstructive hydrocephalus.
					(Figure 2)
				Cerebral angiography	was performed with surgical cut down of the superficial femoral artery
					(Figures 3a and b)
				There	were two major direct feeders/fistulous connections to the vein of Galen
					arising from the left posterior cerebral artery.
				There	was also narrowing of a proximal part of the straight sinus.
				There	was no evidence of venous reflux from the VGM into the deep cerebral veins.

				This VGM	was classified as Type 1 according to Yasargil's classification of the VGM.
	6			**In view of the major contribution of the VGM to the patient's obstructive hydrocephalus,**	*it* was decided to perform transarterial embolization of the VGM in two stages
				Under general anaesthesia following right superficial femoral artery cut down and left vertebral artery catheterisation,	*the major feeding pedicle originating from the left posterior cerebral artery* was superselectively catheterized with a microcatheter, Tracker-Unibody (Target Therapeutic) and Dasher 14 (TargetTherapeutic) guidewire
					(Figure 3c).
				The artery	was completely embolized with placement of six microcoils (Target Therapeutic)
					(Figure 4).
	7			Immediate control vertebral angiogram	showed no visualisation of the VGM, preferential flow of blood into the normal vascular network in the anterior and middle artery distribution, visualisation of multiple normal cerebellar arteries and spontaneous thrombosis of the second arterial feeder/fistulous connection
					not seen on a control angiogram
					(Figures 5a and b).
				Complete cerebral angiogram	confirmed no visualisation of the VGM.
				The patient	tolerated the procedure well
			and		suffered no complications
				Cranial ultrasound and Doppler studies performed 24 hours following embolization	showed complete thrombosis of the VGM with no detectable flow and slight shrinkage of the aneurysm
					(Figure 6).
	6			**Three weeks following embolization**	*a ventriculo-peritoneal shunt was inserted.*
	7			Control CT scan	showed
				the size of the ventricles	to be markedly diminished.
				The patient	was discharged home in a good condition without any neurological deficit
				From a clinical point of view	*the baby* is doing well 5 months following embolization.
				Cranial ultrasound and Doppler studies	are used.
					to follow up the size of the ventricles and thrombosis of the VGM
DISCUSSION	9			The VGM	is a rare anomaly,
	10	2			mainly affecting the paediatric population.
	11	1		The natural history of the disease	is associated with high mortality and morbidity rates.
		2		Active therapy	is required
					to avoid or minimize its early systemic and neurological complications

				VGM	can be treated by surgery, embolization or both.
				The endovascular approach	is a preferential method of treatment because of the lower mortality rate, compared to a surgical approach.
				The type of endovascular approach	depends on the specific anatomy of the given case.
				The most commonly used classification of the VGM	is an angiographic classification according to Yasargil
			who	who (=Yasargil)	divides VGM into four categories
				Type 1	represents pure fistula/fistulas between arteries and the vein of Galen.
				Type 2	is composed of thalamoperforators that supply both brain tissue and give branches to the vein of Galen.
				Type 3	represents a mixed type 1 and 2 lesions.
				Type 4	represents a true AVM that drains into veins which then empty into the vein of Galen.
				The transarterial approach	appears to be the best therapeutic modality for embolization of Type 1, 2 and 3 lesions.
				Microcoils, cyanoacrylates and detachable balloons	can be used as embolic agents.
				Transfemoral transvenous and transtorcular approaches	can also be used, alone or in combination with a transarterial approach
				It (=the approaches)	allows more rapid delivery of larger and longer coils
				The Type 4 malformation	should be treated from the arterial side
					to avoid venous hypertension, congestion and their associated mortality.
				A staged embolization	is required
				which (=a staged embolization)	allows for a gradual reduction in the blood flow through the fistula.
				This (=allowing for reduction in the blood flow)	can theoretically prevent development of regional brain swelling and haemorrhage
				An unusual but potentially fatal complication of endovascular embolization	is a consumptive coagulopathy with postembolization thrombocytopenia that is followed by intracranial haemorrhage.
				This (=coagulopathy)	can be caused by rapid deposition of large amounts of thrombus following embolization.
				Another complication which may occur despite successful occlusion of VGM	is progressive thrombosis of dural venous sinuses and cortical veins.
				The management of hydrocephalus, the need for and timing of ventricular drainage for patients with VGM	remains controversial
				There	are number of complications associated with VGM and the treatment of hydrocephalus described.
	12	1		The management of VGM	is a challenging therapeutic problem for neurointerventional radiologists

		The endovascular approach	at present represents the best treatment modality, despite technical difficulties and an often unpredictable future outcome in these embolized patients.
		The present case	illustrates in a unique fashion the effectiveness of endovascular treatment.
		The authors	wish to thank Prof P Fourie (Pretoria Heart Hospital) for his advice in the management of the patient and Dr K Eastern (Department of Anaesthesiology, Baragwanath Hospital) for anaesthesia during angiographic procedures

STUDENT CASE REPORT:

ARTERIOVENOUS MALFORMATION (AMA)

	MOVE	STEP	THEME		RHEME
			Textual & Interpersonal	Topical	
INTRODUCTION	3	2		My case study	deals with Arteriovenous Malformation
	1			This	is a congenital disorder,
			which	which (=the disorder)	usually occurs between the ages of twenty and forty
				If it goes undetected	*it* could cause serious problems to the patient,
			but	**if detected**	*it* can be treated
			and	the patient	can lead a normal, healthy life
				There	are many methods in which an AVM may be treated
	3	3		We	will now go into detail about what an AVM is and how it is treated
CASE PRESENTATION	4			**For identification purposes**	*we* will refer to the patient as Ms.X..
				Ms.X	is a working, coloured female in her early twenties
				She (=Mrs X)	leads a normal healthy life
			and		is a very active person
				About three years ago	*she* began to experience headaches
			which	which	she initially ignored.
				The headaches	persisted
			and		became severe
			Shortly thereafter	she (=Mrs X)	fitted for the first time
				She	was then admitted to hospital
			and	it	was decided that a CT scan of her brain be done.
				The CT scan	revealed features which were suggestive of an Artenovenous Malformation in the right fronto parietal region.
				For further evaluation	*an angiogram* was suggested
				The angiogram	showed
			that	she (=Mrs X)	had an AVM arising from one of the branches of the middle cerebral artery, possibly the anterior temporal artery
			which	which	was draining into the spheno parietal sinus and then into the cavernous sinus
				Drainage	also appeared to occur via the thalamina straiate vein into the internal cerebral vein.
				Ms.X	was placed on phenyton
			and		received treatment
				She (=Mrs X)	was then discharged from hospital
			but soon thereafter		returned because of multiple nodes on the right side of her neck,
			which	which (=nodes)	had increased with time.
				An ultrasound of her neck	was done

			and	it	was found that there was extensive bilateral cervical lymphadenopathy present,
			which	which (=lymphadenopathy)	can be see on the ultrasound radiographs.
				Two years later	*doctors* began to query a re-bleed
	5	3	so	another CT scan of the brain	was done
				The AVM	appeared significantly smaller in comparison to the previous study of the brain
				the reason for this	was the proton therapy which she had received
				No signs of haemorrhage	was present
DISCUSSION	10	2		Arteriovenous Malformation	is an accumulation of communicating arteries and veins
				This lesion	can result from trauma,
			initially		involving a single artery and vein
			But **the most commonly**	it (=this lesion)	is congenital, with a massive syncytium of abnormal arteriovenous connections.
				Arteriovenous Malformations	occur within the central nervous system as congenital abnormalities.
				The blood	is shunted directly from arteries to veins,
					producing an arterio-venous shunt.
				It (=AVM)	consists of a mass of enlarged and tortuous arteries and veins, in an almost infinite combination of sizes, sites and anastamoses.
				It (=AVM)	may involve several lobes of the brain
			and		are usually supplied by one or more large arteries derived from one or both hemispheres
				It (=AVM)	is sometimes fed from below the tentorium
			and		drained into one or more larger veins.
				The venous drainage	may be deep or superficial
				The malformation	varies in size, from a few millimeters to several centimeters in diameter.
				Some malformations	enlarge with time
			but	only a few	may shrink
			or even		disappear.
				As the malformation enlarges	*the surrounding cerebral tissue* may become chronically ischemic.
				The male population	is affected twice as frequently as the female population
				Arteriovenous Malformations	occur virtually in any portion in or on the brain,
					including the cerebellum and brainstem.
				It (=AVM)	is usually found in the cerebral parenchyma.
			where	where (=in the cerebral parenchyma)	the lesion takes on a conical shape, with the apex deep, often reaching the lateral ventricle
				There	is sometimes a contribution from the middle meningeal
				The most common site	is the territory of the middle cerebral artery, particularly its posterior branches,
			but	it (=the lesion)	may occur anywhere along the midbrain
				Malformations	are rarely found within the spinal cord.
		3		Patients that are suspected of having an arteriovenous malformation	usually begin to develop symptoms between the ages of twenty and forty years, without a peak incidence

			Initially	patients	are presented with signs of haemorrhage,
			which	which (=haemorrhage)	is the most common symptom
					(50 percent of cases and 10 percent of all intracerebral haemorrhages,
					second only to aneurysms).
				Bleeding	usually occurs within the brain substance
			but		may occur within the ventricular system or the subarachnoid space as well.
				Neurologic deficit	may be experienced by the patient due to mass effect, increased venous pressure or vascular steal phenomenon.
				Seizures	are another common symptom
				They (=seizures)	may present as major or minor
			which	which (=seizures)	may be frequent and refractory to medical therapy
			Occasionally	young patients with severe unrelenting headaches	are found to have an arteriovenous malformation
				Although headaches are a common symptom	*it* is not diagnostically helpful, in providing a diagnosis,
			as	it (=the symptom)	may simply be a coincidence.
				Different symptoms	are experienced, depending in which region the malformation is situated in
				A dural AVM, near the petrous bone	presents with benign intracranial hypertension
				Arteriovenous malformations in neonates and infants	produces a high output cardiac failure
			and **sometimes**	a bruit	may be heard over the skull of the orbits.
				A brainstem AVM	may resemble multiple sclerosis, with fluctuating symptoms and signs of brainstem dysfunction, possibly as a result of recurrent haemorrhage.
		7		There	are many risks and complications harboured by an arteriovenous malformation.
			and	**if the malformation is not treated ,**	*the results* can be hazardous to the patient
				The main risk of an untreated malformation	is that the arteries and veins in the affected area may rupture,
					resulting in haemorrhage
				The risk of haemorrhage of an unruptured AVM,	from the time of discovery is about one percent per year cumulatively
				Once the AVM has bled	*the risk of rebleeding* increases to six percent per year
				With each haemorrhage	*the risk of dying* is approximately ten percent
			and	the morbidity	at least fifteen percent.
				Smaller AVMs	remain stable in size
			but	some	enlarge
			as	time	passes
				Associated aneurysms on a feeding artery	are commonly seen
				In such cases,	*the haemorrhage resulting* is usually due to the rupture of the aneurysm
				AVMs	are usually the cause of subarachnoid haemorrhage and intracerebral hematomas.

				Subarachnoid haemorrhage due to AVMs	generally occurs at a younger age than that due to aneurysms.
				Data from the Mayo Clinic	has demonstrated
			that	**in two thirds of affected patients,**	*an unruptured AVM* will bleed over a twenty year period
				Early death and the risk of rebleeding	is less common than after rupture of an intracranial aneurysm.
				Neurological changes	are usually more extensive
			However	**after several recurrent haemorrhages**	*patients* may survive many years with remarkable.little disability.
	11	1		The decision of treatment	is a complicated one,
				numerous factors	need to be taken into consideration
			Before		deciding
			how	the artenovenous malformation	will be treated
		2		The size and locatlon of the lesion	is important,
			because	the possibility of the AVM increasing in size, with increasing shunting of blood,	will further impair the oxygenation of the surrounding healthy tissues.
				The age and the symptoms experienced by the patient	are taken into consideration.
				An AVM that has bled	should be removed surgically,
			if		possible
			because	it (=AVM)	is at a high risk of bleeding
				The decision	is complicated even further
			if	the patient	experienced seizures.
				In cases where the patient is young and the AVM is readily accessible	*surgical removal* is most often recommended
			especially when	the seizures	are medically refractory
				The reason for surgery	in this case is that the probability of the AVM increasing in size will be totally impossible.
				Most AVMs that are deep in the hemisphere	is nonresectable
			since	**according to their natural history**	*they* would have a lower mobidity than would be expected from surgical treatment.
				The excision of an AVM in the tip of the occipital, frontal or the temporal lobe	any not only be lifesaving in the face of haemorrhage
			but		may control seizures
			and		improve the circulation in the involved hemisphere.
				Whenever possible	*surgery* is the most common form of treatment.
			but	operation	is hazardous and usually palliative
				During operation	*microsurgical dissection and resection of the entire malformation* is carried out, instead of simple ligation of the feeding arteries
				The outcome of surgery	is determined by the size and location of the malformation.
				Statistics	show
			that	the mortality	is less than five percent

			and	morbidity	less than ten percent.
				Arterial embolization and radiation therapy	are alternative or adjunctive methods of treatment
				Use	is made of interventional neuroradiological techniques
			or	particulate matter or glues	may be introduced into the AVM via the feeding vessels
					to occlude the vascular shunt.
			Nevertheless	this technique	is able to reduce flow through the AVM prior to direct surgical intervention
				Small-to-medium sized AVMs	may possibly be completely obliterated by ionizing radiation
				Focused gamma or proton beam irradiation	has demonstrated effiancy
			and	occasional success with the conventional irradiation	has been reported
				Endothelial proliferation	is caused by the ionizing radiation
				The duration to obliterate the lesion	is usually between six months to two years
				Focused irradiation	is recommended for deep, surgically inaccessible AVMs
	6			This (=recommendation)	is why Ms.X received proton therapy.
				She (=Mrs X)	had to travel to NAC, just outside Cape Town
					to receive her treatment.
	11	2		Proton therapy	is the treatment of an AVM making use of protons only.
				These protons	have very high energies
			and		are emitted in straight lines.
				The ionization they produce	is mostly concentrated at the end of their pass
				This	is called the Bragg Peak.
				Unlike radiotherapy	with proton therapy *the surrounding healthy tissue* is unharmed
			where	were (=in radiotherapy)	the surrounding normal healthy tissue is also irradiated, unintentionally
				(all the radiation	is concentrated in the affected area only.)
	6			This (=the treatment period)	was a very long and strenuous period for Ms.X
			because	she	had to sit "dead" still
			because	any movement by the patient	will stop the emission of the photon beam
	11	2		This treatment	is very successful
			but	there	is a number of side effects
	7	1		Ms.X	was constantly nauseous
			and	her hair	began to fall out.
	11	2		**From the medical point of view**	*cautious control of severe hypertension* is wise
			and **occasionally**	cardiac rhythm disturbances or even acute neurogenic pulmonary oedema	require appropriate treatment
				Analgesia for the headache and sedation	are useful.
			if	the patient	is very irritable
				Antifibrinolytic drugs such as epsilon aminocaproic acid or tronexamic acid	reduce the risk of rebleeding
			by		reducing the lysis of the fibrin clot plugging the ruptured aneurysm
			but		do not improve the overall prognosis,
			because **probably**	the risk of vasospasm	is increased..

				Bedrest for four to six weeks	is usually recommended
			but	there	is an increasing tendency gently to mobilize patients
			when	the headache	has resolved
	10	5		**In order to make on accurate and liable diagnosis**	*certain imaging of the brain, such as CT and MRI* need to be done
				A cerebral angiogram to reveal the malformation	will only be done
			if	finding the lesion	would lead to treatment to remove or obliterate it.
				The diagnosis	may be picked up on a CT scan,
				a plain scan	may show calcification.
			and	enhanced scan	is most likely to show the dilated vessels of large malformations.
				MRI	is more sensitive,
			and		can show areas of old haemorrhage and flow voids
CASE PRESENTATION	7	2		Ms.X's prognosis	looks very promising
				There	does not appear to be any features which will suggest an acute or recent haemorrhage within the AVM.
				Ms.X	responded well to the proton therapy
			and	no complication	was encountered.
				she (=Mrs X)	is well on her way to recovery
				The proton therapy	left her feeling weak
			and	she (=Mrs X)	is not as active as she was before the treatment
			but	**all of this will be resolved with a little rest,**	*she* says.
				Ms.X	will still have to go to hospital for regular check-ups and tests.
			But	the worst	is over
			and	she (=Mrs X)	is very positive.